

THE UNIVERSITY OF TEXAS AT AUSTIN

Date: September 5, 2013**RECOMMENDATION FOR CHANGE IN ACADEMIC RANK/STATUS**Name: J. Eric BickelPresent Rank: Assistant Professor

Years of Academic Service (Include AY 2013-14 in each count):

At UT Austin since: 9/1/08 In present rank: 6 years ; In Probationary Status (TT only): 6 years
(m/d/y) (# of years) (# of years)Department: Mechanical EngineeringOther: Operations Research/Industrial EngineeringCollege/School: Cockrell School of Engineering**Recommended action¹:**By Budget Council/Executive Committee: PromoteVote² for promotion 29 ; Against 0 ; Abstain 0 ; Absent 7By Department Chair: Promote

By SBS Executive Committee: _____

Vote² for promotion _____ ; Against _____ ; Abstain _____ ; Absent _____

By Director: _____

By College/School Advisory Committee: PromoteVote² for promotion 7 ; Against 0 ; Abstain 0 ; Absent 0By Dean: PromoteAdministrative Action: Promote to Associate ProfessorDate Action Effective: September 1, 2014

(To be submitted to the Board of Regents as part of the annual budget.)

By: _____

For the President

Date: 12/16/2013¹See "Chart of Recommended Actions" for eligible recommended actions applicable to specific conditions and administrative levels.²All votes are to be recorded as For, Against, or Abstain. (Note: unexplained abstentions will be interpreted as weak negative votes by the President's Committee.) Also record number of absent eligible voting members.

EVPP/4.13

EXHIBIT**P's 171**

Dean's Assessment
James Eric Bickel
 Department of Mechanical Engineering

J. Eric Bickel received his BS degree in Mechanical Engineering from New Mexico State University in 1993. He received his MS and PhD degrees in Engineering-Economic Systems from Stanford University in 1994 and 1999, respectively. After completing his PhD, he spent five years as a consultant with Strategic Decisions Group in Houston and four years as an assistant professor in the Department of Industrial and Systems Engineering at Texas A&M University. He joined the faculty at UT Austin in 2008 as an assistant professor in the Department of Mechanical Engineering as part of the graduate program in Operations Research/Industrial Engineering.

Ten external review letters were submitted as part of the promotion dossier, four were suggested by the candidate and six were selected by the budget council. All reviewers are current or emeritus faculty members at US universities and one is a Nobel Laureate in Economics and a member of the National Academy of Sciences and the Institute of Medicine. Three other reviewers, selected by the candidate, declined without any negative implication.

Teaching

Dr. Bickel has taught one undergraduate course in mechanical engineering and two graduate courses in operations research and industrial engineering: ME 353, *Engineering Finance* (six times); ORI 397, *Introduction to Decision Analysis* (five times); and ORI 390.R, *Applied Probability* (three times). His average overall instructor/course ratings for these courses are 3.6/3.4, 4.4/4.2 and 4.3/4.1 respectively.

As a baseline for comparison the average weighted (by class size) overall instructor ratings for undergraduate and graduate courses for assistant professors in Mechanical Engineering are 4.0 and 4.2 respectively. Comparing Dr. Bickel's overall instructor rating to that of other faculty teaching ME 353, one finds that his ratings are quite good. In fact, his last evaluations of 4.5/4.2 for Spring 2013 are among the best in the recent past. The in-class peer evaluations and student comments confirm that his teaching is good and continues to improve.

In addition, Dr. Bickel has led the development a Management Science and Engineering certificate program in the Department of Mechanical Engineering. This is aimed at encouraging engineering students to not only develop a focus in this topic area, but to pursue a research project encouraging top students to eventually attend graduate school. Dr. Bickel also co-led a week long course at Stanford University for the Decision Education Foundation targeting high-school teachers and adult mentors of at-risk youth. He developed two professional education courses in *Decision Quality* and *Decision Leadership* which he taught to executives and managers in the energy industry in 2011.

Research

Dr. Bickel's research focuses on the theory and practice of decision analysis under uncertainty, with applications to climate change and energy exploration. In particular his recent work has focused on the development of new methodologies for probability-based decision-making. He has several recognized contributions including new approaches to the discretization of continuous distributions to support efficient computation, and representation of partial information and joint distributions. Also of note are his publications bringing rigor and uncertainty modeling and analysis to bear on questions in climate change.

In rank at UT, he has published 24 refereed journal papers, two refereed conference publications, and six book chapters. He has 30 refereed journal papers in his career.

Dr. Bickel has secured \$4.0 million in research funding in rank at UT (his share is \$1.45 million). He served as the principal investigator on eleven of the fifteen grants/contracts, which include a very diverse set of sponsors from federal sources (National Science Foundation and Department of Energy) and industry (BP America and Schlumberger). Dr. Bickel received a CAREER award from the National Science Foundation in 2010.

The external reviewers' assessment of Dr. Bickel's research speak to his creativity, the potential practical impact of his published work, and his leadership and service to the field. Representative highlights include:

Dr. Thomas Schelling (University of Maryland and Harvard University, Nobel Prize, NAS, IOM) writes, "I find Eric Bickel to be as imaginative, insightful, and original on geoengineering as any expert I know in the field. He has produced ideas that others have not originated. His professional background in statistics and probability is, as far as I know, unique in the field. He is a policy thinker. Others contribute more to their particular sciences—atmosphere, chemistry or physics, agronomy, oceanology [sic] - but Bickel is almost unique in his ability to identify crucial issues in the possibl[e] governance of either experiments or possible ultimate deployment of any effort at managing solar radiation."

Dr. Katherine Ensor (Rice University) writes, "Dr. Bickel has clearly established himself as a leading scholar in decision analysis. He is extremely well published, well funded and a strong contributor to the community through his editorships, conference participations and invited speaking opportunities. Further, his ties to the corporate community are a strong indicator of the relevance of his research to leading global corporations. Dr. Bickel is clearly a leader as evidenced by his initiation of the joint corporate outreach between the University of Texas and Stanford; simply impressive."

Dr. Stephen Pollock (University of Michigan) writes, "Professor Bickel's career trajectory is unusual for its acceleration, direction and consistency. Usually, when an Assistant Professor comes up for a tenure/promotion decision, the major question to be asked is whether the candidate *will* be the kind of colleague one would want to have for the rest of his/her academic career; whether the past accomplishments point towards a *future* of productivity and excellence. In Bickel's case, the questions are almost moot – he is *already* a person who one wants to have as a colleague for the infinite future, and his past accomplishments are *already* those one would expect to have in a full Professor."

Advising and Student Mentoring

While in rank, Dr. Bickel has graduated two PhD students and has three more in progress. One of his PhD advisees from Texas A&M has taken an academic position at the University of Alaska. Dr. Bickel has also graduated thirteen MS students and mentored four undergraduate students.

University Service

Dr. Bickel has served on a number of departmental committees related to the undergraduate curriculum and recruiting of graduate students.

Professional Service

Dr. Bickel has been very active in national and international professional activities. He has served as an associate editor and on the editorial board of *Decisional Analysis*, a flagship journal in his research area, and on the editorial board of the journal *EURO Journal of Decision Processes*. He is now the vice president/president-elect of the 1200-member Decision Analysis Society (DAS).

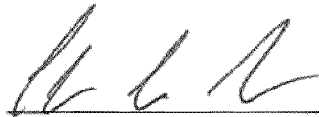
Other Evidence of Merit or Recognition

Dr. Bickel has received national and international recognition for his research. He received a CAREER Award from the National Science Foundation in 2010, he is an elected fellow of the Society of Decision Professionals, he is the vice president/president elect of the Decision Analysis Society, and he was invited to present to a distinguished panel of scientists and Nobel Prize winners at the Copenhagen Consensus on Climate Change in 2009.

Overall Assessment

Dr. Bickel has a well-rounded profile both as a researcher and teacher. He has made research contributions on the methodological side of decision analysis under uncertainty that are likely to have practical impact and he is recognized as a leader in the field. He has garnered substantial attention outside of academe for his work addressing questions in the area of climate change. His research output in terms of graduate student supervision and publications is strong.

Accordingly, I am pleased to provide a strong recommendation to promote J. Eric Bickel to associate professor with tenure.



Sharon L. Wood, Interim Dean
10 November 2013



COCKRELL SCHOOL OF ENGINEERING


THE UNIVERSITY OF TEXAS AT AUSTIN

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MEMORANDUM

To: Gregory L. Fenves
Dean, Cockrell School of Engineering

From: Jayathi Y. Murthy 
Chair, Department of Mechanical Engineering

Date: September 6, 2013

Re: Chair's Statement for Prof. Eric Bickel's promotion to Associate Professor

Prof. Eric Bickel is currently Assistant Professor in the Department of Mechanical Engineering and holds joint appointments in Petroleum and Geosystems Engineering, Energy and Earth Resources, and in the Division of Statistics and Scientific Computing. He obtained his Ph.D from Stanford in 1999. After his PhD, he spent five years with Strategic Decisions Group in Houston, and then, four years (2004-2008) as Assistant Professor at Texas A&M. He joined UT directly afterwards, in August 2008. The year 2013-2014 is his up-or-out year, and he must be considered for promotion to Associate Professor in Fall 2014.

Prof. Bickel's research interests include the theory and practice of decision analysis under uncertainty. His research program consists of both the development of methodology for decision analysis as well as applied work in environmental and energy systems. During the last few years, he has focused on climate change analysis, energy exploration, improved estimation of probability distributions, risk assessment and the analysis of sports strategy. Prof. Bickel's work is interdisciplinary and has involved collaborations not only within Mechanical Engineering, but also with the LBJ School of Public Affairs, the Bureau of Economic Geology, and the Department of Petroleum and Geosystems Engineering at UT.

The ME Budget Council met on August 27, 2013, and voted to promote Prof. Bickel to Associate Professor with tenure (for: 29 votes; against: 0; abstain: 0; absent: 7). The discussion in the Budget Council was very positive, and the case for promotion and tenure was considered strong on all fronts: research, teaching and service. In particular, members of the Budget Council commended the mix of theoretical and practical research, its impact on real world problems, the surprising maturity of Prof. Bickel's professional interactions and his leadership of a national professional society at a young age. The overwhelmingly strong reference letters were considered especially persuasive. The only point of concern was the relatively low number of citations (295 citations per Google Scholar, with an h-index of 8), especially given a nearly 9-year tenure as Assistant Professor. Members of the Operations Research explained this as being the norm for Operations Research. The Budget Council concluded that Prof. Bickel was well on his

way to establishing himself as a leader in the field of decision analysis and that he had established a growing and increasingly influential research program. I strongly support the Budget Council's decision to promote Dr. Bickel to Associate Professor with tenure. My reasons are given below.

Research

Prof. Bickel has had a total of 24 journal publications in print since joining UT in 2008, for a career total of 30 journal papers. Of his UT publications, 8 are with UT students, and 2 with his Texas A&M students. He has also had 8 conference papers published since 2008, for a career total of 17. In addition, he has published 5 book chapters and two peer-reviewed conference proceedings since joining UT. His rate of journal publication at UT has been over 4 papers a year, and he has published in well-regarded journals in his field. This rate of publication is considered relatively high for the Operations Research area, according to the ORIE members of our Budget Council.

Prof. Bickel has made important contributions in a number of research areas. I cite three here. An important contribution has been the assessment of the value of imperfect information. In his 2008 paper, "The Relationship Between Perfect and Imperfect Information in a Two- Action Risk-Sensitive Problem," *Decision Analysis* 5(3) 116-128, he computed the relationship between perfect and imperfect information as a way of quantifying this value. In his 2011 paper, "Discretization, Simulation, and

Swanson's (Inaccurate) Mean," *SPE Economics and Management*, pp. 128-140, Prof. Bickel and his co-workers showed how the commonly-used Swanson's mean could yield erroneous representations of probability distributions, and how more efficient representations of discrete probability distributions could be used to significantly speed up probabilistic computations. In his 2013 paper, "Reconsidering the Economics of Aerosol Geoengineering," *Climatic Change* 119(3) 993-1006, Prof. Bickel and his student overturned the conclusions of a previously published paper on the economic analysis of climate engineering by re-examining the conditions under which aerosol geoengineering could or would be used. These three papers point to the breadth of Prof. Bickel's contributions, and his focus on both methodology development and its applications to important real-world problems. The latter has been remarked upon by his referees as well.

Prof. Bickel has been quite successful in obtaining funding to support his research. He has obtained over \$4.04M (\$1.45M his share) while at UT from both federal and industry sources, again reflecting his interest in both fundamental and applied work. His career totals are \$4.26M and \$1.6M, respectively. This level of funding is considered high for OR faculty, and places him among the most strongly funded in his peer-group in the country.

Prof. Bickel has graduated 2 PhD students during his tenure at UT, and 3 more are in progress. He has also graduated 13 MS students, with one more in progress. He graduated 1 PhD student and 12 MS students at Texas A&M University previously.

Though the current size of his research group is relatively small, and though he appears to have graduated an inordinately large number of MS students, he has demonstrated clearly that he is capable of conceptualizing PhD topics, obtaining funding for his students, and guiding PhD theses to completion. He has published extensively with his students as well.

Teaching

Prof. Bickel has taught one undergraduate course, ME 353: *Engineering Finance*, and two ORIE graduate courses, ORI 397: *Decision Analysis*, and ORI 391Q.1: *Applied Probability* during his tenure at UT. *Engineering Finance* is a core undergraduate course in the ME curriculum, with a large enrollment of about 110 students, while the other two courses are important components of the graduate program in ORIE; *Decision Analysis* is an elective course developed by Prof. Bickel in his research area. In his undergraduate teaching, Prof. Bickel's average instructor and course scores are 3.65/3.4, somewhat below CSE averages. Nevertheless, these represent a significant improvement over historical scores in this class, which though required, is not considered by many ME undergraduates to be a mainstream engineering course. His scores in this course in recent offerings have been very good, including an instructor score of 4.5 in Spring 2013, perhaps the highest ever received in this class. Student comments in his courses are complimentary, and recognize the challenges of teaching this difficult material to Mechanical Engineering students. In his graduate classes, Prof. Bickel has performed well, with average instructor scores in the 4.3-4.4 range.

At least as importantly, Prof. Bickel has undertaken a number of auxiliary instructional activities. As a part of his CAREER proposal, he created a certificate program in Management Science and Engineering for ME undergraduates. Furthermore, he worked with Stanford's Decision Education Foundation to help teach high school teachers, and mentors of at-risk youth how to teach their students decision-making skills. Prof. Bickel has worked with the University's Center for Lifelong Engineering Education (CLEE) and Stanford's Center for Professional Development to offer two courses in Stanford's Strategic Decision and Risk Management Program. Furthermore, he has sought to educate industry executives in decision making. He has offered courses in *Decision Quality* and *Decision Leadership* to executives in Houston in December 2011, and plans to do so again in January 2014.

Service

Prof. Bickel has been extraordinarily active in national and international professional activities, at levels that are very unusual for junior faculty. He has served as an associate editor and on the editorial board of *Decisional Analysis*, a flagship journal on decision analysis research, and on the editorial board of the journal *EURO Journal of Decision Processes*. He is now the President-elect of the 1200-member Decision Analysis Society (DAS) of the Institute for Operations Research and Management Sciences (INFORMS). This is an extraordinary recognition of Prof. Bickel's stature and contributions by his professional colleagues. He has undertaken numerous service activities in the Department

and the College as well, at levels far higher than would be expected for an Assistant Professor.

Honors and Recognitions

Prof. Bickel won the prestigious NSF CAREER award in 2010. He has also received the 2011 Society of Petroleum Engineers Outstanding Technical Editor award in recognition of his performance of editorial duties. He has also been elected Fellow of the Society of Decision Professionals, the highest level of membership offered by the Society. He has given a large number of invited presentations at universities, in industry and at federal agencies; these are recognitions of his rising stature in the decision analysis field.

Reference Letters

Ten letters of reference were obtained for Prof. Bickel from leading experts in the decision analysis field. All were very positive. I include here quotes from three of his referees.

Thomas C. Schelling, Distinguished University Professor Emeritus, University of Maryland, and winner of the 2005 Nobel Prize in Economics:

"...Bickel is almost unique in his ability to identify crucial issues in the possible governance of either experiments or possible ultimate deployment of any effort at managing solar radiation."

Shane Henderson, Professor, School of ORIE, Cornell University:

"Eric is an important contributor to his chosen field of decision analysis, and he plays a vital role in ensuring a flow of ideas back and forth between academics and practitioners, because he is one of those select academics that is equally at home in both spheres. His research is academically interesting, highly applicable and impactful."

Stephen Pollock, Emeritus Herrick Professor of Engineering, Department of ORIE, University of Michigan:

"Perhaps the best way I can phrase my bottom-line recommendation about your decision is to use what might seem to be a threat: if you do *not* promote and tenure Assistant Professor Eric Bickel at this opportunity, you can be sure he will be soon [be] recruited and hired, with tenure and likely at the Full Professor level, at one of this country's major educational institutions."

Areas of Concern

One area of concern that was discussed by the Budget Council was the relatively low citation rate (295 per Google Scholar) and h index (8) for Prof. Bickel's work, especially considering that he has been in rank as Assistant Professor for about nine years (UT and Texas A&M combined). An examination of these indices for researchers in the Operations Research and decision theory communities in peer schools is revealing. Our

Budget Council found h-indices in the range 8-12 and Google Scholar citation numbers in the range 250-350 for many senior assistant and early associate professors in ORIE, similar to Prof. Bickel's. These numbers must be used with caution, however: in many instances, it was difficult to determine whether the citations were truly for the individual under consideration, and the number of years beyond the PhD varied in the group. Prof. Bickel's ISI citation numbers are far lower than his Google Scholar numbers. This may be because the most important journals in his field are not included by ISI, and a major outlet for his publications, *Decision Analysis*, only began to be listed in 2009.

Overall, though the low numbers are a cause for concern, I do not believe this issue is serious enough to redound on the promotion question.

Summary

The above analysis indicates that Prof. Bickel has compiled a strong record of research, teaching and service and meets or exceeds the exacting standards of the Cockrell School of Engineering for a faculty member of his rank. I strongly endorse his promotion to Associate Professor with tenure in the Department of Mechanical Engineering.



COCKRELL SCHOOL OF ENGINEERING
Department of Petroleum and Geosystems Engineering

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September 13, 2013

DEPARTMENT OF PETROLEUM AND GEOSYSTEMS ENGINEERING

COURTESY APPOINTMENT STATEMENT

DR. J. ERIC BICKEL

Dr. Eric Bickel has a zero time appointment in the PGE Department.:

1. He often attends the departmental faculty meetings.
2. He works with Dr. Larry Lake on research projects managed through the Center for Petroleum Asset Risk Management and participates in the Center's meetings.

By observing Dr. Bickel's presentations, I conclude that he is very bright and keeps a sufficient distance between himself and his predictions of the future. I really appreciate that Dr. Bickel stays with the "55% right" approach, and is not an always right prophet.

Sincerely,

A handwritten signature in cursive script that reads "Tad Patzek".

Dr. Tad Patzek
Chairman and Professor
Cockrell Family Chair in Engineering No. 11
The Lois K. and Richard D. Folger Leadership Chair

TWP:sjt

Promotion Review
1a – CV

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL, PH.D.
Assistant Professor
Department of Mechanical Engineering
Graduate Program in Operations Research / Industrial Engineering
Cockrell School of Engineering
The University of Texas at Austin

Birthplace: Albuquerque, New Mexico

Citizenship: USA

EDUCATION:

| | | | |
|---------------------|---|-----|------|
| Stanford University | Engineering-Economic Systems | PhD | 1999 |
| Stanford University | Engineering-Economic Systems | MS | 1994 |
| New Mexico State | Mechanical Engineering (Minor: Economics) | BS | 1993 |

PROFESSIONAL REGISTRATION: Engineering-in-Training, State of New Mexico.

CURRENT AND PREVIOUS ACADEMIC POSITIONS:

2008–Present **The University of Texas at Austin, Austin, Texas.**
Assistant Professor, Graduate Program in Operations Research / Industrial Engineering.
Assistant Professor (by courtesy), Petroleum and Geosystems Engineering.
Member, Graduate Studies Committee, Energy and Earth Resources Graduate Program.
Member, Graduate Studies Committee, Division of Statistics and Scientific Computing.
Fellow, Center for Petroleum Asset Risk Management.

2011–Present **Stanford Center for Professional Development & UT Center for Lifelong Engineering Education**
Instructor, Strategic Decision and Risk Management Certificate Program.

2004–2008 **Texas A&M University, College Station, Texas.**
Assistant Professor, Department of Industrial and Systems Engineering.

OTHER PROFESSIONAL EXPERIENCE:

1995–Present **Strategic Decisions Group (SDG), Houston, Texas and Palo Alto, California.**
Senior Engagement Manager & Co-Leader, Executive Client Education (1995–2004).
Outside Consultant (2004–Present).

1995–Present **Competitive Edge Decision Systems, Austin, Texas**
President and Founder.

1994–1999 **Stanford University, Stanford, California.**
Decision Analysis Program, Lead Teaching Assistant (1996–1998), TA (1999).
Energy Modeling Forum (EMF), Research Assistant, Climate Change (1994–1995).

1994 **Pacific Northwest Laboratories, Richland, Washington (Summer).**
Decision & Risk Analysis Group, Associated Western Universities Fellowship.

1991–1993 **Sandia National Laboratories, Livermore, California (Summer and Co-op).**
Internal Combustion Engines Department, Outstanding Student Summer Program and Associated Western Universities Fellowship.

1989–1990 **Sandia National Laboratories, Albuquerque, New Mexico (Summers).**
Intelligent Systems Department, Outstanding Student Summer Program.

Promotion Review
1a – CV

J. E. Bickel
Mechanical Engineering (ORIE)

HONORS AND AWARDS:

2012 Elected Vice-President/President-Elect of Decision Analysis Society (1200 members)
2011 SPE Outstanding Technical Editor
2011 Fellow, Society of Decision Professionals
2010 NSF CAREER Award
2006 Winner of the INFORMS Decision Analysis Society 2006 Practice Award
2006 INFORMS Student Chapter, Appreciation Award for Faculty
2005 INFORMS Young Researcher Roundtable

MEMBERSHIPS IN PROFESSIONAL AND HONORARY SOCIETIES:

American Meteorological Society (AMS)
American Society of Mechanical Engineers (ASME)
Decision Analysis Society (DAS)
Energy, Natural Resources, and the Environment (ENRE) INFORMS Section
Institute for Operations Research and the Management Sciences (INFORMS)
INFORMS Sports Section (SpORts)
Institute of Electrical and Electronics Engineers (IEEE)
Institute of Industrial Engineers (IIE)
Mensa
Society for American Baseball Research (SABR)
Society of Decision Professionals
Society of Petroleum Engineers (SPE)

UNIVERSITY COMMITTEE ASSIGNMENTS:

The University of Texas at Austin

2013 Member, Mechanical Engineering Undergraduate Scholarship Committee.
2012–Present Member, Mechanical Engineering Undergraduate Curriculum Advancement Committee.
2012–Present Graduate Recruiter, Grad. Program in Operations Research and Industrial Engineering.
2012–Present Member, Mechanical Engineering, Laptop Committee
2008–Present Member, Mechanical Engineering, Graduate Student Recruiting Committee (ORIE Rep).
2009 Member, CSE Space and Earth Engineering Strategic Thrust Committee.
2009 Member, CSE Sustainable Energy Thrust Committee.
2008–2009 Member, Mechanical Engineering Clean Energy Committee.

Texas A&M University

2006–2008 Member, Awards Committee, Industrial and Systems Engineering.
2005–2008 Chair, Systems Engineering Curriculum Committee, Industrial and Systems Engineering.
2004–2008 Member, Dean's Project Management Certificate Committee.
2004–2005 Industrial Engineering and Systems Engineering Graduate Committee.

PROFESSIONAL SOCIETY SERVICE:

Elected Positions

2012–2016 Vice President/President-Elect, Decision Analysis Society (1200 members).
2011–2012 Board of Directors, Society of Decision Professionals.
2008–2010 Vice Chair for Programs, OR in Sports (SpORts).
2006–2008 Council Member, INFORMS' Decision Analysis Society.

Other Service

2012–Present Member, INFORMS Sections/Societies Committee.
2012–Present Member, INFORMS Subdivisions Council.
2012–Present Member, INFORMS PR Subcommittee.

Promotion Review
1a – CV

J. E. Bickel
Mechanical Engineering (ORIE)

- 2012– Present Chair, Decision Analysis Society Nominating Committee.
- 2011–2012 Member, Society of Decision Professionals Knowledge Sharing Committee.
- 2010– 2011 Chair, Decision Analysis Society Wikipedia Committee.
- 2010 Instructor, Decision Education Foundation.
- 2008–2010 Chair, Practice Award Committee, Decision Analysis Society.
- 2006–2008 Chair, Membership Committee, Decision Analysis, Society.
- 2005–2008 Member, Publications Award Committee, Decision Analysis Society.
- 2005–2008 Member, Nominating Committee, Decision Analysis Society.

Conference Organization

Steering and Program Committees

1. Bickel, J. Eric (chair), Ellen Coopersmith, Jim Felli, Steve Letros, Henk Krijnen, Christian Bos. 2013. Decision Analysis Affinity Group Annual Conference, Austin, Texas, 11-12 April. Note: I am the only academic ever to chair this practitioner-focused conference.

Cluster Chair

1. Bickel, J. Eric. 2010. SpORts Track, INFORMS 2010 Annual Conference, Austin, Texas, 7-10 November.
2. Bickel, J. Eric. 2009. SpORts Track, INFORMS 2009 Annual Conference, San Diego, California, 11-14 October.
3. Bickel, J. Eric. 2009. Management Track Selection Committee, SPE 2009 ATCE, New Orleans, Louisiana, 4-7 October.
4. Bickel, J. Eric. 2008. Decision Analysis Cluster Chair, INFORMS 2008 Regional Conference, College Station, Texas, 18-19 April.
5. Bickel, J. Eric. 2008. Management Track Selection Committee, SPE 2008 ATCE, Denver, Colorado, 21-24 September.
6. Bickel, J. Eric. 2007. Management Track Selection Committee, SPE 2007 ATCE, Anaheim, California, 11-14 November.
7. Bickel, J. Eric. 2005. Decision Analysis Cluster Co-Chair, INFORMS 2005 Annual Conference, San Francisco, California, 13-16 November.

Session Chair

1. Bickel, J. Eric. 2012. "Aggregation of Probabilistic Judgments," INFORMS 2012 Annual Conference, Phoenix, Arizona, 15 October.
2. Bickel, J. Eric. 2012. "Scoring Rules and Probability Assessment," INFORMS 2012 Annual Conference, Phoenix, Arizona, 14 October.
3. Bickel, J. Eric. 2010. "DAS Practice Awards," INFORMS 2010 Annual Conference, Austin, Texas, 7-10 November.
4. Bickel, J. Eric. 2009. "DAS Practice Awards," INFORMS 2009 Annual Conference, San Diego, California, 11-14 October.
5. Bickel, J. Eric. 2009. "Value of Information," INFORMS 2009 Annual Conference, San Diego, California, 11-14 October.
6. Bickel, J. Eric. 2008. "Data and Integration Architectures," 2008 Digital Energy Conference, Houston, Texas, 20 November.
7. Bickel, J. Eric. 2005. "Decision Analysis Arcade II," 2005 INFORMS Annual Conference, San Francisco, California, 13-16 November.
8. Bickel, J. Eric. 2005. "Decision Analysis Arcade III," 2005 INFORMS Annual Conference, San Francisco, California, 13-16 November.
9. Bickel, J. Eric. 2005. "Decision Analysis Arcade IV," 2005 INFORMS Annual Conference, San Francisco, California, 13-16 November.
10. Bickel, J. Eric. 2005. "SpORts Arcade," 2005 INFORMS Annual Conference, San Francisco, California, 13-16 November.

Promotion Review
1a – CV

J. E. Bickel
Mechanical Engineering (ORIE)

11. Bickel, J. Eric. 2004. "Teaching Decision Analysis," 2004 INFORMS Annual Conference, Denver, Colorado, 24-27 October.
12. Bickel, J. Eric. 2004. "Using Decision Analysis to Manage Canadian Resources," CORS/INFORMS, Banff, Alberta, Canada, 16-19 May.

EDITORIAL SERVICE:

- 2012–Present Member Editorial Board, *EURO Journal on Decision Processes*.
 2011–Present Topical Editor, *Wiley Encyclopedia of Operations Research and Management Science*.
 2010–Present Associate Editor, *Decision Analysis*.
 2009–Present Member of Editorial Board, *Decision Analysis*.
 2009–Present Technical Editor, *SPE Economics & Management*.
 2006–2009 Ad Hoc Associate Editor, *Decision Analysis*.

INTERNATIONAL AND NATIONAL COMMITTEES AND ADVISORY PANELS:

- 2012–Present Co-Chair, *Ultra-Deepwater Environmental, Safety & Regulatory & Metocean Technical Advisory Committee*, Research Partnership to Secure Energy for America (RPSEA, DOE NETL).
 2009–Present Advisory Board, Mizzou Advantage Sustainable Energy Initiative.
 2006–2008 Advisory Council, Quantification and Management of Risk in Exploration and Production, International Research Institute of Stavanger (Norway).

PUBLICATIONS (* = STUDENT)

A1. Refereed Archival Journal Publications (30)

1. Bickel, J. Eric and Shubham Agrawal*. 2013. "Reexamining the economics of aerosol geoengineering." *Climatic Change* 119(3) 993-1006. doi: 10.1007/s10584-012-0619-x.
2. Puerta-Ortega*, Carlos, J. Eric Bickel, and Susan Hovorka. 2013. "Assessing the value of permeability data in a carbon capture and storage project." *International Journal of Greenhouse Gas Control* 17 523-533. doi:10.1016/j.ijggc.2013.06.003.
3. Hammond*, Robert K. and J. Eric Bickel. 2013. "On the Decision Relevance of Stochastic Oil Price Models: A Case Study." Forthcoming in *The Engineering Economist*. doi: 10.1080/0013791X.2013.806975.
4. Hammond*, Robert K. and J. Eric Bickel. 2013. "Approximating Continuous Probability Distributions Using the 10th, 50th, and 90th Percentiles." Forthcoming in *The Engineering Economist*. doi: 10.1080/0013791X.2013.793761.
5. Bickel, J. Eric. 2013. "Climate engineering and climate tipping-point scenarios." *Environment, Systems & Decisions* 33(1) 152-167. doi: 10.1007/s10669-013-9435-8.
6. Zan*, Kun and J. Eric Bickel. 2013. "Components of Portfolio Value of Information." *Decision Analysis* 10(2) 171-185. doi: 10.1287/deca.2013.0267.
7. Montiel*, Luis V. and J. Eric Bickel. 2013. "Approximating Joint Probability Distributions Given Partial Information." *Decision Analysis* 10(1) 26-41. doi:10.1287/deca.1120.0261.
8. Hammond*, Robert K. and J. Eric Bickel. 2013. "Reexamining Discrete Approximations to Continuous Distributions." *Decision Analysis* 10(1) 6-25. doi: 10.1287/deca.1120.0260.
9. Keller, L. Robin, Ali Abbas, J. Eric Bickel, et al. 2012. "From the Editors-Brainstorming, Multiplicative Utilities, Partial Information on Probabilities or Outcomes, and Regulatory Focus." *Decision Analysis* 9(4) 297-302. doi:10.1287/deca.1120.0255.
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11. Bickel, J. Eric. 2012. "Discretization, Simulation, and the Value of Information." *SPE Economics & Management* 4(4) 198-203. doi: 10.2118/145690-PA.
12. Montiel*, Luis V. and J. Eric Bickel. 2012. "Generating a Random Collection of Discrete Joint Probability Distributions Subject to Partial Information." Forthcoming in *Methodology and Computing in Applied Probability*. doi: 10.1007/s11009-012-9292-9.
13. Keller, L. Robin, Ali Abbas, J. Eric Bickel, et al. 2011. "From the Editors-Probability Scoring Rules, Ambiguity, Multiattribute Terrorist Utility, and Sensitivity Analysis." *Decision Analysis* 8(4) 251-255. doi: 10.1287/deca.1110.0222.
14. Bickel, J. Eric, Eric Floehr, and Seong Dae Kim*. 2011. "Comparing NWS PoP Forecasts to Third-Party Providers." *Monthly Weather Review* 139(10) 3304-3321. doi: 10.1175/2011MWR3525.1.
15. Bickel, J. Eric, Larry W. Lake, and John Lehman. 2011. "Discretization, Simulation, and Swanson's (Inaccurate) Mean." *SPE Economics & Management* 3(3) 128-140. doi: 10.2118/148542-PA.
16. Bickel, J. Eric. 2010. "Scoring Rules and Decision Analysis Education." *Decision Analysis* 7(4) 346-357. doi: 10.1287/deca.1100.0184.
17. Kim*, Seong Dae and J. Eric Bickel. 2010. "Roads or Radar: The Tradeoff Between Investments in Infrastructure and Forecasting When Facing Hurricane Risk." *IEEE Systems Journal* 4(3) 363-375. doi: 10.1109/JSYST.2010.2050372.
18. Bratvold, Reidar B., J. Eric Bickel, and Hans Petter Lohne. 2009. "Value of Information in the Oil and Gas Industry: Past, Present, and Future." *SPE Reservoir Evaluation & Engineering* 12(4) 630-638. doi: 10.2118/110378-PA.
19. Bickel, J. Eric. 2009. "On the Decision to Take a Pitch." *Decision Analysis* 6(3) 186-193. doi: 10.1287/deca.1090.0145.
20. Bickel, J. Eric and Reidar B. Bratvold. 2008. "From Uncertainty Quantification to Decision Making in the Oil and Gas Industry." *Energy Exploration & Exploitation* 26(5) 311-325. doi: 10.1260/014459808787945344.
21. Bickel, J. Eric and Seong Dae Kim*. 2008. "Verification of The Weather Channel Probability of Precipitation Forecasts." *Monthly Weather Review* 136(12) 4867-4881. doi: 10.1175/2008MWR2547.1.
22. Bickel, J. Eric, Richard L. Gibson, Duane A. McVay, Stephen Pickering, and John Waggoner. 2008. "Quantifying the Reliability and Value of 3D Land Seismic." *SPE Reservoir Evaluation & Engineering* 11(5) 832-841. doi: 10.2118/102340-PA.
23. Bickel, J. Eric. 2008. "The Relationship Between Perfect and Imperfect Information in a Two-Action Risk-Sensitive Problem." *Decision Analysis* 5(3) 116-128. doi: 10.1287/deca.1080.0118.
24. Bickel, J. Eric, James E. Smith, and Jennifer L. Meyer. 2008. "Modeling Dependence Among Geologic Risks in Sequential Exploration Decisions." *SPE Reservoir Evaluation & Engineering* 11(2) 352-361. doi: 10.2118/102369-MS.
25. Bickel, J. Eric. 2007. "Some Comparisons among Quadratic, Spherical, and Logarithmic Scoring Rules." *Decision Analysis* 4(2) 49-65. doi: 10.1287/deca.1070.0089.
26. Bickel, J. Eric. 2006. "Some Determinants of Corporate Risk Aversion." *Decision Analysis* 3(4) 233-251. doi: 10.1287/deca.1060.0080.
27. Bickel, J. Eric and James E. Smith. 2006. "Optimal Sequential Exploration: A Binary Learning Model." *Decision Analysis* 3(1) 16-32. doi: 10.1287/deca.1050.0052.
28. Bickel, J. Eric. 2004. "Teaching Decision Making with Baseball Examples." *INFORMS Transactions on Education* 5(1) 2-9. doi: 10.1287/ited.5.1.2.
29. Bickel, J. Eric. 2003. "Why it is So Hard to Hit .400: New Insights into an Old Statistic." *The Baseball Research Journal* 32 15-21.

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30. Bickel, J. Eric and Dean A. Stotz. 2002. "Batting Average by Count and Pitch Type: Fact and Fallacy." *The Baseball Research Journal* 31 29-34.

A2. Manuscripts under Review (7)

31. Hammond*, Robert K. and J. Eric Bickel. 2013. "Discretization Methods for Continuous Probability Distributions." Under Review at the *Wiley Encyclopedia of Operations Research and Management Science*.
32. Montiel*, Luis V. and J. Eric Bickel. 2013. "A Generalized Sampling Approach for Multi-linear Utility Functions with Partial Preference Information." Under Review at *Decision Analysis* (revise and resubmit).
33. Bickel, J. Eric and Seong Dae Kim*. 2013. "EFFICIENCY OF THE MLB OVER-UNDER MARKET." Under Review at the *Journal of Sports Economics*.
34. Hirotsu, Nobu and J. Eric Bickel. 2013. "Optimal batting orders in run-limit-rule baseball: A Markov-chain approach." Under review at *IMA Journal of Management Mathematics*.
35. Thomas*, Philip, Reidar Bratvold, and J. Eric Bickel. 2013. "The Risk of Using Risk Matrices." Under review at *SPE Economics & Management*.
36. Kim*, Seong Dae, Robert K. Hammond*, and J. Eric Bickel. 2013. "Improved Mean and Variance Estimating Formulas for PERT Analyses." Under review at *IEEE Transactions on Engineering Management*.
37. Kullawan, K., R. Bratvold and J. E. Bickel. 2013. "Integration of Bayesian Decision-Making Into Geosteering Practices." Under review at *SPE Drilling & Completion*.

A3. Manuscripts in Preparation (3)

38. Hirotsu, Nobu and J. Eric Bickel. 2013. "A method for identifying the situations to attempt a sacrifice bunt using a Markov-chain model."
39. Montiel*, Luis V. and J. Eric Bickel. 2013. "Accuracy of Joint Distribution Approximations."
40. Montiel*, Luis V. and J. Eric Bickel. 2013. "Decision Making with Partial Probabilistic or Preference Information."

B1. Refereed Conference Proceedings (2)

1. Canion*, B., E. Bickel, C. Hadlock*, D. Morton, and E. Schneider. 2013. "Game Theoretic Analysis of Physical Protection System Design." *Proceedings of GLOBAL 2013*, September 29 – October 3.
2. Bickel, J. Eric. 2009. "EXPERIENTIAL LEARNING AND STRICTLY-PROPER SCORING RULES." ASEE Annual Conference, Paper AC 2009-2249, Austin, TX, 17 June.

B2. Non-Refereed Conference Proceedings (17)

1. Kullawan*, K., R. Bratvold and J. E. Bickel. 2013. "Integration of Bayesian Decision-Making Into Geosteering Practices." Paper SPE 167433-MS presented at the SPE Middle East Intelligent Energy Conference and Exhibition, Dubai, UAE, 28-30 October.
2. Thomas*, Philip, Reidar B. Bratvold, and J. Eric Bickel. 2013. "The Risk of Using Risk Matrices." Paper SPE 166269-MS presented at the SPE Annual Technical Conference and Exhibition, New Orleans, Louisiana, 30 September – 02 October.
3. Gong*, Xinglai, Duane McVay, Eric Bickel, and Luis Montiel*. 2011. "Integrated Reservoir and Decision Modeling To Optimize Northern Barnett Shale Development Strategies." Paper CSUG/SPE 149459 presented at the Canadian Unconventional Resources & International Petroleum Conference, Calgary, Alberta, Canada, 15-17 November.

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4. Bickel, J. Eric. 2011. "Discretization, Simulation, and the Value of Information." Paper SPE 145690 presented at the SPE Annual Technical Conference and Exhibition, Denver, Colorado, 30 October – 02 November.
5. Turkarslan*, G., D. A. McVay, J. E. Bickel, L. V. Montiel*, and R. R. Ortiz*. 2010. "Integrated Reservoir and Decision Modeling to Optimize Spacing in Unconventional Gas Reservoirs." Paper CSUG/SPE 137816 presented at the Canadian Unconventional Resources & International Petroleum Conference, Calgary, Alberta, Canada, 19-21 October.
6. Bickel, J. Eric, Eric Floehr, and Seong Dae Kim*. 2010. "COMPARING NWS POP FORECASTS TO THIRD-PARTY PROVIDERS." Paper AMS 161669, presented at the 20th Conference on Probability and Statistics, 90th American Meteorological Society Annual Meeting, Atlanta, Georgia, 18 January.
7. Yu*, O.-Y, S. D. Guikema, J. E. Bickel, J.-L. Briaud, and D. B. Burnett. 2009. "Systems Approach and Quantitative Decision Tools for Technology Selection in Environmentally Friendly Drilling." paper SPE 120848 presented at the SPE Environmental & Safety Conference, San Antonio, Texas, 23-25 March.
8. Arcos*, D., D. Zhu, and E. Bickel. 2008. "Technical, Economic and Risk Analysis for a Multilateral Well." Paper SPE 115099 presented at the SPE Russian Oil and Gas Technical Conference and Exhibition, Moscow, Russia, 28-30 October.
9. Kim*, Seong Dae and J. Eric Bickel. 2008. "ROADS OR RADAR: INVESTING IN INFRASTRUCTURE OR IMPROVED FORECASTING IN THE FACE OF TROPICAL CYCLONE RISK." 28th Conference on Hurricanes and Tropical Meteorology, Orlando, Florida, 28 April – 02 May.
10. Bickel, J. Eric and Seong Dae Kim*. 2008. "VERIFICATION OF THE WEATHER CHANNEL PROBABILITY OF PRECIPITATION FORECASTS." Presented at the 19th Conference on Probability and Statistics, 88th American Meteorological Society Annual Meeting, New Orleans, Louisiana, 23 January.
11. Bickel, J. Eric and Reidar B. Bratvold. 2007. "Decision Making in the Oil & Gas Industry: From Blissful Ignorance to Uncertainty-Induced Confusion." Paper SPE 109610 presented at the SPE Annual Technical Conference and Exhibition, Anaheim, California, 11-14 November.
12. Bratvold, Reidar B., J. Eric Bickel, and Hans Petter Lohne. 2007. "Value of Information in the Oil and Gas Industry: Past, Present, and Future." Paper SPE 110378 presented at the SPE Annual Technical Conference and Exhibition, Anaheim, California, 11-14 November.
13. Kim*, Seong Dae and J. Eric Bickel. 2007. "Roads or Radar: Investing in Infrastructure or Improved Forecasting in the Face of Hurricane Risk." *Proceedings of the 44th Annual Meeting of the Society of Engineering Science*, Texas A&M University, College Station, Texas, 21-24 October.
14. Gibson, Richard, J. Eric Bickel, Duane McVay, and Steve Pickering. 2007. "Model-Based Uncertainty Quantification and Seismic Information Value." *SEG Technical Program Expanded Abstracts* 26(1) 71-75.
15. Bickel, J. Eric, James E. Smith, and Jennifer L. Meyer. 2006. "Modeling Dependence Among Geologic Risks in Sequential Exploration Decisions." Paper SPE 102369-Revised presented at the SPE Annual Technical Conference and Exhibition, San Antonio, Texas, 24-27 September.
16. Bickel, J. Eric, Richard L. Gibson, Duane A. McVay, Stephen Pickering, and John Waggoner. 2006. "Quantifying the Reliability and Value of 3D-Land Seismic." Paper SPE 102340-RMS2 presented at the SPE Annual Technical Conference and Exhibition, San Antonio, Texas, 24-27 September.
17. Bickel, J. E., R. L. Gibson, D. A. McVay, S. Pickering, and J. Waggoner. 2006. "Value of Seismic Information with Multiple Drilling Targets." *EAGE Expanded Abstracts* B012.

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C. Other Publications (2)

1. Pickering, Steve and J. Eric Bickel. 2006. "The value of seismic information." *Oil and Gas Financial Journal* 3(5) 26-33.
2. Bickel, J. Eric and Dean Stotz. 2003. "To 'Take' or 'Not to Take': What's on Your Plate." *Coach and Athletic Director*, November, 21-24.

D. Book Chapters (6)

1. Bickel, J. Eric and Lee Lane. 2013. "Climate Engineering R&D." In: *Global Problems, Smart Solutions*, Bjørn Lomborg (ed.). Cambridge University Press: Cambridge, UK. 752 pages.
 - a. This work was part of the Copenhagen Consensus 2012 led by Bjørn Lomborg. Expert panel: Finn Kydland (Nobel Laureate), Robert Mundell (Nobel Laureate), Thomas Schelling (Nobel Laureate), Vernon Smith (Nobel Laureate), and Nancy Stokey.
2. Bickel, J. Eric and Lee Lane. 2013. "CLIMATE ENGINEERING AND R&D." In: *How to Spend \$75 Billion to Make the World a Better Place*, pp. 135-136. Bjørn Lomborg. Copenhagen Consensus Center, Washington, DC.
3. Bickel, J. Eric, James E. Smith, and Jennifer L. Meyer. 2011. "Modeling Dependence Among Geologic Risks in Sequential Exploration Decisions." In: *Decision Analysis in E&P*, pp. 148-157. Frank Koch (ed.). Society of Petroleum Engineers, Richardson, Texas. 210 pages.
4. Bratvold, Reidar B., J. Eric Bickel, and Hans Petter Lohne. 2011. "Value of Information in the Oil and Gas Industry: Past, Present, and Future." In: *Decision Analysis in E&P*, pp. 158-166. Frank Koch (ed.). Society of Petroleum Engineers, Richardson, Texas. 210 pages.
5. Bickel, J. E., R. L. Gibson, D. A. McVay, S. Pickering, and J. Waggoner. 2011. "Quantifying 3D Land Seismic Reliability and Value." In: *Decision Analysis in E&P*, pp. 167-175. Frank Koch (ed.). Society of Petroleum Engineers, Richardson, Texas. 210 pages.
6. Bickel, J. Eric and Lee Lane. 2010. "Climate Engineering." In: *Smart Solutions for Climate Change: Comparing Costs and Benefits*, pp. 9-51. Bjørn Lomborg (ed.). Cambridge University Press: Cambridge, UK. 436 pages.
 - a. This work was part of the Copenhagen Consensus on Climate Project. The Copenhagen Consensus Center (CCC) has been named by the University of Pennsylvania as one of the top-10 think tanks in the world. <http://www.gotothinktank.com/>
 - b. The CCC is directed by Bjørn Lomborg, who has been named one of the 100 Top Global Thinkers by *Foreign Policy*, one of the world's 75 most influential people by *Esquire*, and one of 50 people who could save the planet by the *UK Guardian*.
 - c. Our research was ranked first by an expert panel comprised of Jagdish Bhagwati, Finn Kydland (Nobel Laureate), Thomas Schelling (Nobel Laureate), Vernon Smith (Nobel Laureate), and Nancy Stokey. <http://fixtheclimate.com/#/component-1/the-result-prioritization/>

E. Reviews (0)

F. Technical Reports (7)

1. Bickel, J. Eric. 2013. "QUANTIFYING THE BENEFIT OF CCS MONITORING AND VERIFICATION TECHNOLOGIES." CO2 Capture Project.
2. Lane, Lee and J. Eric Bickel. 2013. "SOLAR RADIATION MANAGEMENT: AN EVOLVING CLIMATE POLICY OPTION." American Enterprise Institute for Public Policy Research.
3. Cipiti, B. B., S. E. Jordan, G. D. Wyss, T. G. Lewis III, F. A. Duran, C. Hadlock*, B. Canion*, E. Schneider, E. Bickel, D. Morton. 2012. "Risk-Informed Analysis and Game Theory Applied to Small

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Modular Reactor Security.” Sandia National Laboratories Technical Report SAND2012-10814, December 2012 (official use only).

4. Bickel, J. Eric and Lee Lane. 2012. “Climate Change: Climate Engineering Research.” *Copenhagen Consensus 2012*. Copenhagen Consensus Center, Copenhagen, Denmark.
5. Bickel, J. Eric. 2010. “The Climate Engineering Option: Economics and Policy Implications.” American Enterprise Institute for Public Policy Research.
6. Lane, Lee and J. Eric Bickel. 2009. “Solar Radiation Management and Rethinking the Goals of COP-15.” In: Lane, Lee, J. Eric Bickel, I. Galiana, C. Green, and V. Bosetti, Introduction by Bjørn Lomborg, *Copenhagen Consensus on Climate: Advice for Policy Makers*. <http://fixtheclimate.com/>
7. Bickel, J. Eric and Lee Lane. 2009. “An Analysis of Climate Engineering as a Response to Climate Change.” *Copenhagen Consensus on Climate*. Copenhagen Consensus Center, Copenhagen, Denmark. <http://fixtheclimate.com/>

DOCUMENTARY APPEARANCES / INTERVIEWS (5):

1. List, Barry. June 21, 2013. “Analytics at the Plate” INFORMS Science of Better Podcast. <http://www.scienceofbetter.org/podcast/bickel2.html>
2. Allen, Max. March 19, 2012. “Demon Coal.” CBC Radio One. Canada.
3. List, Barry. January 14, 2011. “Will Geoengineering Rescue Us from Climate Change?” INFORMS Science of Better Podcast. <http://www.scienceofbetter.org/podcast/bickel.html>
4. *Cool It*. 2010. Directed by Ondi Timoner. Distributed by Roadside Attractions and 1019 Entertainment. Based on the book by Bjørn Lomborg. My research into geoengineering is prominently featured. I make an appearance in the film, as does my co-author, Lee Lane. <http://www.imdb.me/jericbickel>
5. Mantle, Larry. August 18, 2009. “Air conditioning for Earth.” Interviewed on *Air Talk, National Public Radio*. USA.

SAMPLING OF MEDIA MENTIONS & POPULAR PRESS:

1. Lemire, Joe. January 10, 2013. “Evan Gattis: The Coolest Story and Nickname in Baseball.” *Sports Illustrated*. In this story, rookie phenom, and Atlanta Braves starting catcher, Evan Gattis credits my research with shaping his approach to hitting.
2. Silver, Nate. 2012. *The Signal and the noise: Why so many predictions fail—but some don't*. The Penguin Press, New York, NY. Discusses my work on the calibration of weather forecasts.
3. Lomborg, Bjorn. May 9, 2011. “There’s No One Perfect Fix for Climate Change.” *Slate*. http://www.slate.com/articles/technology/copenhagen_consensus_2012/2012/05/copenhagen_consensus_us_technology_geoengineering_and_low_carbon_taxes_are_favored_solutions_for_tackling_global_warming_.html
4. Furchtgott-Roth, Diana. December 1, 2011. “There’s No Appetite for Kyoto II.” *Real Clear Markets*. http://www.realclearmarkets.com/articles/2011/12/01/theres_no_appetite_for_kyoto_ii_99397.html
5. Lomborg, Bjorn. August, 28, 2009. “Technology Can Fight Global Warming.” *Wall Street Journal*. USA.
6. Tierney, John. August 19, 2009. “The Horror of Climate Engineering?” *New York Times*. USA.
7. Walsh, Bryan. August 18, 2009. “Can Geoengineering Help Slow Global Warming?” *Time Magazine*. USA.
8. Tierney, John. August 10, 2009. “The Earth Is Warming? Adjust the Thermostat.” *New York Times*. USA.
9. Witze, Alexandra. August 7, 2009. “Geoengineering Schemes under Scrutiny.” *Nature News*. USA.

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10. van Loon, Jeremy and Christian Wienberg. August 7, 2009. "Ships Spraying Sea Water May Offer Climate Quick Fix." *Bloomberg*. USA.
11. Harvey, Fiona. August 7, 2009. "Study Calls for Cheaper Options to Cut Emissions." *Financial Times*. United Kingdom.
12. Webster, Ben. August 7, 2009. "Cloud Ships on Course to Beat Climate Change, Says Copenhagen Study." *The Times*. United Kingdom.
13. Staff. August 7, 2009. "Cloud Ship Scheme to Deflect the Sun's Rays is a Favourite to Cut Global Warming." *The Telegraph*. United Kingdom.
14. Robson, David. February 6, 2009. "How good are the Weather Channel's predictions?" *Short Sharp Science*.
<http://www.newscientist.com/blogs/shortsharpscience/2009/02/how-good-are-the-weather-chann.html>

ORAL PRESENTATIONS (* = STUDENT):

A. Invited Lectures (24)

1. Bickel, J. Eric. 2013. "Deciding to Geoengineer the Planet: A Decision Analysis Case Study." Society of Decision Professionals, Webinar, 25 June.
2. Lane, Lee and J. Eric Bickel. 2013. "Solar Radiation Management: An Evolving Climate-Policy Option." American Enterprise Institute for Public Policy Research, Washington, DC, 29 May. Prof. Thomas Schelling (Nobel Laureate in Economics) offered comments on our paper.
<http://www.aei.org/events/2013/05/29/solar-radiation-management-an-evolving-climate-policy-option/>
3. Bickel, J. Eric. 2012. "Risk Management with Partial Information." Committee of Chief Risk Officers, Risk Networking Summit. 27 September.
4. Bickel, J. Eric. 2012. "Simulation, Decision Trees, and Discretization." Chevron Oil Corporation, Decision Analysis Day. 24 September.
5. Bickel, J. Eric. 2012. "Climate Change and Climate Engineering." Rice University, Jones Graduate School of Business, 28 March.
6. Bickel, J. Eric. 2011. "Discretization, Simulation, and Swanson's (Inaccurate) Mean." Society of Decision Professionals, Webinar, 14 September.
7. Bickel, J. Eric. 2011. "Modeling of Probabilistic Dependence." IBM Research, Watson Research Center, 04 February.
8. Bickel, J. Eric. 2010. "The Climate Engineering Option." IOE Department, University of Michigan, Ann Arbor, Michigan, 22 September.
9. Bickel, J. Eric. 2010. "Climate Engineering as a Response to Climate Change." The Future of the Electricity Industry, Austin, Texas, 10 June.
10. Bickel, J. Eric. 2010. "The Geoengineering Option: Economics and Policy Implications." The American Enterprise Institute for Public Policy Research, Washington, DC, 24 February. Representative Bart Gordon (D-Tennessee), Chairman of the House Committee on Science and Technology, provided introductory comments. <http://www.aei.org/event/100207>
11. Bickel, J. Eric. 2009. "Climate Change and Climate Engineering." Climate-Change Legislative Summit, Austin, TX, 22 September. Appeared at the request of Public Utility Commissioner Barry Smitherman.
12. Bickel, J. Eric and Lee Lane. 2009. "Climate Engineering as a Response to Climate Change." Copenhagen Consensus on Climate Change, Washington, DC, 02 September. Presentation to expert panel comprised of Jagdish Bhagwati, Finn Kydland (Nobel Laureate), Thomas Schelling (Nobel

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Laureate), Vernon Smith (Nobel Laureate), and Nancy Stokey. <http://fixtheclimate.com/copenhagen-consensus-on-climate/>

13. Bickel, J. Eric. 2008. "Value of Information Demonstration." SPE ATW – Probabilistic Subsurface Assessments, Houston, Texas, 10-11 November.
14. Bickel, J. Eric. 2008. "Uncertainty Quantification and Value of Information; Why we do what we do." Marathon Oil, Subsurface Forum, Houston, Texas, 23 October.
15. Bickel, J. Eric. 2008. "Unlocking the Value of Seismic Information." SPE 2008 Digital Energy Conference, Houston, Texas, 20 May.
16. Bickel, J. Eric. 2007. "Value of Information: Theory and Practice." Graziadio School of Business Management, Pepperdine University, Malibu, California, 13 November.
17. Bickel, J. Eric. 2007. "Some Comparisons among Quadratic, Spherical, and Logarithmic Scoring Rules." Operations Research / Industrial Engineering Group, University of Texas, 26 October.
18. Bickel, J. Eric. 2007. "Quantifying 3D Land Seismic Reliability and Value." Department of Petroleum and Geosystems Engineering, University of Texas at Austin, 17 September.
19. Bickel, J. Eric. 2007. "Value of Information." Eni Exploration and Production, Eni Corporate University, Milan, Italy, 25-27 June.
20. Bickel, J. Eric. 2007. "Decision-Focused Profit Predication." SPE Forum – The Future of Profit Prediction, Colorado Springs, Colorado, 4-8 June.
21. Bickel, J.E., R.L. Gibson, D.A. McVay, S. Pickering, and J. Waggoner. 2006. "Quantifying 3D Land Seismic Reliability and Value." Houston SPE Reservoir Study Group, Houston, Texas, 24 October.
22. Bickel, J. Eric. 2006. "Optimal Sequential Exploration." McCombs School of Business, University of Texas at Austin, 5 May.
23. Bickel, J. Eric. 2005. "Optimal Sequential Exploration." Optimization Technology Group, ExxonMobil Research, Houston, Texas, 19 August.
24. Bickel, J. Eric. 2005. "Optimal Sequential Exploration." National Infrastructure Simulation and Analysis Center (NISAC), Sandia National Laboratories, Albuquerque, New Mexico, 27 June.

B. Conference Presentations (47)

1. Kullawan, K., R. Bratvold and J. E. Bickel. 2013. "Integration of Bayesian Decision-Making Into Geosteering Practices." Paper SPE 167433-MS presented at the SPE Middle East Intelligent Energy Conference and Exhibition, Dubai, UAE, 28-30 October.
2. Thomas*, Philip, Reidar Bratvold, and J. Eric Bickel. 2013. "The Risk of Using Risk Matrices." Paper SPE 166269-MS presented at the SPE Annual Technical Conference and Exhibition, New Orleans, Louisiana, 30 September - 02 October.
3. Canion*, B., E. Bickel, C. Hadlock*, D. Morton, and E. Schneider. 2013. "Game Theoretic Analysis of Physical Protection System Design." Presented at *GLOBAL 2013: International Nuclear Fuel Cycle Conference*, Salt Lake City, Utah, 29 September – 03 October.
4. Duncan, I. J., H. Wang, and J. E. Bickel. 2012. "Pragmatic and Modeling Approaches to Understanding Risks of Leakage in Shale Gas Wells." Society for Risk Analysis, Annual Meeting, San Francisco, California, December 2012.
5. Duncan, I. J., H. Wang, and J. E. Bickel. 2012. "Predicting CO2 Pipeline Risk from Natural Gas Accident Data." DOE National Energy Technology Laboratory CO2 Sequestration Review Meeting, Pittsburgh, Pennsylvania, September 2012.
6. Bickel, J. Eric. 2013. "Climate Change and Climate Engineering." DAAG Annual Conference, Austin, Texas, 11 April.
7. Bickel, J. Eric. 2013. "Academic Perspectives." DAAG Annual Conference, Austin, Texas, 11 April.

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8. Bickel, J. Eric and Luis Montiel*. 2012. "Making Decisions with Partial Information: Eagle Airlines Example." INFORMS Annual Conference, Decision Analysis Track, Charlotte, North Carolina, 12 November.
9. Montiel*, Luis and J. Eric Bickel. 2012. "Simulating Discrete Joint Probability Distributions Subject to Partial Information." INFORMS Annual Conference, Decision Analysis Track, Charlotte, North Carolina, 12 November.
10. Zan*, Kun and J. Eric Bickel. 2012. "Ranking or Selection?" INFORMS Annual Conference, Decision Analysis Track, Charlotte, North Carolina, 11 November.
11. Bickel, J. Eric. 2011. "Discretization, Simulation, and Swanson's (Inaccurate) Mean." DAAG Annual Conference, Houston, Texas, 21-22 April.
12. Bickel, J. Eric. 2011. "Discretization, Simulation, and the Value of Information." SPE Annual Technical Conference and Exhibition, Denver, Colorado, 30 October – 02 November.
13. Bickel, J. Eric. 2010. "Normative Corporate Risk Aversion." INFORMS Annual Conference, Decision Analysis Track, Austin, Texas, 9 November.
14. Bickel, J. Eric and Arjun Ramakrishnan*. 2010. "Discretization and Value of Information." INFORMS Annual Conference, Decision Analysis Track, Austin, Texas, 6 November.
15. Bickel, J. Eric, Eric Floehr, and Seong Dae Kim*. 2010. "Comparing NWS POP Forecasts to Third-Party Providers." 20th Conference on Probability and Statistics, 90th American Meteorological Society Annual Meeting, Atlanta, Georgia, 18 January.
16. Bickel, J. Eric. 2009. "Geoengineering: Costs, Benefits and Risks." INFORMS Annual Conference, Decision Analysis Track, San Diego, California, 14 October.
17. Bickel, J. Eric. 2009. "The Relationship between Perfect and Imperfect Information in a Risk-Sensitive Two-Action Problem." INFORMS Annual Conference, Decision Analysis Track, San Diego, California, 13 October.
18. Kim*, Seong Dae and J. Eric Bickel. 2008. "Tradeoff between Investments in Infrastructure and Forecasting in the Face of Hurricane Risk." INFORMS Annual Conference, Decision Analysis Track, Washington, DC, 14 October.
19. Bickel, J. Eric. 2008. "Strictly Proper Scoring Rules Theory and Practice." INFORMS Annual Conference, Decision Analysis Track, Washington, DC, 14 October.
20. Bickel, J. Eric and Eric Floehr. 2008. "Calibration of Probability of Precipitation Forecasts." INFORMS Annual Conference, Decision Analysis Track, Washington, DC, 14 October.
21. Bickel, J. Eric and Seong Dae Kim*. 2008. "Verification of The Weather Channel Probability of Precipitation Forecasts." 19th Conference on Probability and Statistics, 88th American Meteorological Society Annual Meeting, New Orleans, Louisiana, 23 January.
22. Bickel, J. Eric and Reidar Bratvold. 2007. "Decision-Making in the Oil & Gas Industry – From Blissful Ignorance to Uncertainty Induced Confusion." SPE Annual Technical Conference and Exhibition, Anaheim, California, 11-14 November.
23. Bratvold, Reidar, J. Eric Bickel, and Hans Petter Lohne. 2007. "Value of Information in the Oil and Gas Industry: Past, Present, and Future." SPE Annual Technical Conference and Exhibition, Anaheim, California, 11-14 November.
24. Bickel, J. Eric. 2007. "Strictly Proper Scoring Rules and the Measurement of Uncertainty." INFORMS Annual Conference, Decision Analysis Track, Seattle, Washington, 6 November.
25. Bickel, J. Eric. 2007. "Decision Education for All." INFORMS Annual Conference, Decision Analysis Track, Seattle, Washington, 5 November.

Promotion Review
1a – CV

J. E. Bickel
Mechanical Engineering (ORIE)

26. Gibson, Rick, J. Eric Bickel, Duane McVay, and Steve Pickering. 2007. "Model-Based Uncertainty Quantification and Seismic Information Value." SEG Annual Meeting, San Antonio, Texas, 23-28 September.
27. Bickel, J. Eric. 2007. "Applying OR across the Baseball Decision Hierarchy." Symposium on Statistics and Operations Research in Baseball, Hayward, California, 11 July 2007.
28. Bickel, J. Eric. 2007. "Value of Information: From Theory to Practice." INFORMS 2007 Conference on OR Practice, Vancouver, British Columbia, Canada, 30 April – 01 May 2007.
29. Pickering, Stephen, J. Eric Bickel, Richard L. Gibson, and Duane A. McVay. 2007. "Measuring the Value of Seismic Information in E&P Workflows." Petrotech 2007. New Delhi, India, 15-19 January.
30. Pickering, Stephen, J. Eric Bickel, Richard L. Gibson, and Duane A. McVay. 2006. "The Value of Seismic Information." PETEX 2006. London, United Kingdom, 21-23 November.
31. Bickel, J. Eric. 2006. "ChartMine[®]: Using Decision Theory and Data Mining to Improve On-Field Baseball Decision Making." 2006 INFORMS Annual Conference, Pittsburgh, Pennsylvania, 5-8 November.
32. Bickel, J. Eric, Rick Gibson, Duane McVay, Steve Pickering, and John Waggoner. 2006. "WesternGeco Uses Decision Analysis to Communicate the Value of Seismic Surveys to Potential Clients." 2006 INFORMS Annual Conference, Pittsburgh, Pennsylvania, 5-8 November. Winner of the INFORMS Decision Analysis Society 2006 Practice Award.
33. Bickel, J. Eric, Rick Gibson, Duane McVay, Steve Pickering, and John Waggoner. 2006. "Value of Seismic with Multiple Drilling Targets." 2006 SEG Annual Meeting, New Orleans, Louisiana, 1-6 October. Appeared in a special session entitled "The Best of the SBGf Conference."
34. Bickel, J. Eric, James E. Smith, and Jennifer L. Meyer. 2006. "Modeling Dependence among Geologic Risks in Sequential Exploration Decisions." SPE Annual Technical Conference and Exhibition, San Antonio, Texas, 24-27 September.
35. Bickel, J. Eric, Richard L. Gibson, Duane A. McVay, Stephen Pickering, and John Waggoner. 2006. "Quantifying 3D Land Seismic Reliability and Value." SPE Annual Technical Conference and Exhibition, San Antonio, Texas, 24-27 September.
36. Bickel, J. Eric, Rick Gibson, Duane McVay, Steve Pickering, and John Waggoner. 2006. "Value of Seismic with Multiple Drilling Targets." SEG/SBGf/ULG, Development and Production Forum, Rio de Janeiro, Brazil, 7-11 August. **Selected to appear in a special session at the 2006 SEG Annual Meeting entitled "The Best of the SBGf Conference."**
37. Bickel, J. Eric, Rick Gibson, Duane McVay, Steve Pickering, and John Waggoner. 2006. "Value of Seismic with Multiple Drilling Targets." 2006 EAGE Annual Conference, Vienna, Austria, 13 June.
38. Bickel, J. Eric and Reidar Bratvold. 2006. "Decision Focused Uncertainty Quantification." SPE/EAGE Workshop "What Do Geoscientists and Engineers Need to Do to Better Manage Uncertainty?" Dubrovnik, Croatia, 13-16 March.
39. Bickel, J. Eric and James E. Smith. 2006. "Optimal Sequential Exploration: A Binary Learning Model." SPE/EAGE Workshop "What Do Geoscientists and Engineers Need to Do to Better Manage Uncertainty?" Dubrovnik, Croatia, 13-16 March.
40. Bickel, J. Eric and James E. Smith. 2006. "Optimal Sequential Exploration: A Binary Learning Model." 2006 DAAG, Baltimore, Maryland, 29-31 March.
41. Bickel, J. Eric and James E. Smith. 2005. "Optimal Sequential Exploration: A Binary Learning Model." 2005 INFORMS Annual Conference, San Francisco, California, 13-16 November.
42. Bickel, J. Eric. 2005. "Experiential Learning and Strictly Proper Scoring Rules." 2005 INFORMS Annual Conference, San Francisco, California, 13-16 November.

Promotion Review
1a – CV

J. E. Bickel
Mechanical Engineering (ORIE)

43. Bickel, J. Eric. 2005. "On the Value of Throwing Strikes." 2005 INFORMS Annual Conference, San Francisco, California, 13-16 November.
44. Bickel, J. Eric. 2004. "Teaching Decision Making with Baseball Examples." 2004 INFORMS Annual Conference, Denver, Colorado, 24-27 October.
45. Bickel, J. Eric. 2004. "To Take or Not to Take: Optimal Hitting Strategy in Baseball." 2004 INFORMS Annual Conference, Denver, Colorado, 24-27 October.
46. Bickel, J. Eric. 2003. "Using Maximum Entropy to Assess the Probability of Success in Oil and Gas Exploration." 2003 INFORMS Annual Conference, Atlanta, Georgia, 19-22 October.
47. Bickel, J. Eric. 1998. "The Corporate Contractual System and Normative Corporate Risk Attitude." 1998 INFORMS Annual Conference, Seattle, Washington, 25-28 October.

GRANTS AND CONTRACTS (TOTAL: \$4.00 MILLION, PI SHARE: \$1.35 MILLION):

| | | | | | | | | J. E. Bickel Share | |
|--------------------|--------------|--------------------------------|--|---|-------------|-----------------|-------------|--------------------|-------------|
| # | PI | Co-PI(s) | Title | Sponsor | Peer Review | Grant Period | Amount | % | \$ |
| 1 | J.E. Bickel | None | Project 20K: Quantifying System Reliability to Inform Concept Selection | BP America Production Company | No | 6/1/13-8/31/14 | \$186,917 | 100% | \$186,917 |
| 2 | V. Rai | J.E. Bickel (Sr. Person.) | Towards an Emergent Model of Tech. Adoption for Accel. the Diffusion of Residential Solar PV | Department of Energy for Improved Recovery (Norway) | Yes | 6/1/13-8/31/16 | \$492,096 | 6% | \$29,526 |
| 3 | J.E. Bickel | None | Real-time Steering Decision during Drilling | | No | 8/31/14 | \$69,325 | 100% | \$69,325 |
| 4 | E. Schneider | J.E. Bickel & D. Morton | Support for Risk-Informed Security Analysis Meth. w/ App. to Small Modular Reactors | Sandia National Labs | No | 7/1/12-5/31/13 | \$110,000 | 40% | \$44,000 |
| 5 | J.E. Bickel | None | Quantifying the Benefit of CCS Monitoring and Verification Technologies | BP America Production Company | No | 7/18/12-8/31/13 | \$44,560 | 100% | \$44,560 |
| 6 | J.E. Bickel | None | CAREER: Accurate and Efficient Modeling of Probabilistic Dependence | National Science Foundation | Yes | 3/1/10-2/28/15 | \$400,000 | 100% | \$400,000 |
| 7 | I. Duncan | J. Nicot, C. Yang, J.E. Bickel | Developing Comprehensive Risk Assessment Frameworks for Geological Storage of CO2 | Department of Energy—NETL | Yes | 9/1/09-8/31/14 | \$1,996,132 | 7% | \$142,406 |
| 8 | D. McVay | J.E. Bickel | Optimizing Development Strategies to Increase Reserves in Unconventional Gas Reservoirs | Research Partnership to Secure Energy for America (DOE) | Yes | 9/1/08-12/31/11 | \$394,606 | 48% | \$188,602 |
| 9 | J.E. Bickel | None | SGER: Resource Allocation and the Value of Information | National Science Foundation | Yes | 9/1/08-12/31/10 | \$120,000 | 100% | \$120,000 |
| While at UT Austin | | | | | | | Sub-total | 32% | \$1,225,336 |
| 10 | J.E. Bickel | D. McVay, R. Gibson | Quantifying the Value of Seismic Information Phase 2 | Schlumberger | No | 9/1/06-8/31/07 | \$125,000 | 60% | \$75,000 |
| 11 | J.E. Bickel | D. McVay, R. Gibson | Quantifying the Value of Seismic Information | Schlumberger | No | 9/1/05-8/31/06 | \$50,000 | 60% | \$30,000 |
| 12 | J.E. Bickel | None | Copulas and Energy Commodity Pricing | Suez Energy Marketing | No | 1/1/05-5/31/05 | \$15,000 | 100% | \$15,000 |
| Grand Total | | | | | | | \$4,083,636 | 34% | \$1,345,336 |

OTHER SUPPORT (TOTAL: \$254,000, PI SHARE: \$254,000):

| | | | | | | | | J. E. Bickel Share | |
|--------------------|-------------|----------|--|--------------------------------|-------------|----------------|-----------|--------------------|-----------|
| # | PI | Co-PI(s) | Title | Sponsor | Peer Review | Period | Amount | % | \$ |
| 13 | J.E. Bickel | None | Applied Projects in OR Project Class | DrillingInfo | No | 1/1/13-5/31/13 | \$10,000 | 100% | \$10,000 |
| 14 | J.E. Bickel | None | Center for Petroleum Asset Risk Management (CPARM) Membership | Weatherford International | No | 9/1/12-8/31/13 | \$50,000 | 100% | \$50,000 |
| 15 | J.E. Bickel | None | Center for Petroleum Asset Risk Management (CPARM) Membership | Kuwait Oil Company | No | 9/1/12-8/31/14 | \$100,000 | 100% | \$100,000 |
| 16 | J.E. Bickel | None | Management Science and Engineering Undergraduate Certificate Program | UT Austin (ME PROCEED Program) | No | 4/1/10-8/31/15 | \$20,000 | 100% | \$20,000 |
| 17 | J.E. Bickel | None | Summer Research Assignment | UT Austin | Yes | 6/1/09-7/31/09 | \$25,000 | 100% | \$25,000 |
| 18 | J.E. Bickel | None | Graduate School Diversity Mentoring Fellowship | UT Austin | Yes | 9/1/09-8/31/10 | \$24,000 | 100% | \$24,000 |
| While at UT Austin | | | | | | | Sub-total | 100% | \$229,000 |
| 19 | J.E. Bickel | None | Pathways to Doctorate Program | Texas A&M | Yes | 9/1/06-8/31/07 | \$25,000 | 100% | \$25,000 |
| Grand Total | | | | | | | \$254,000 | 100% | \$254,000 |

Promotion Review
1a – CV

J. E. Bickel
Mechanical Engineering (ORIE)

PH.D. SUPERVISIONS COMPLETED (3):

The University of Texas (2)

1. Zan, Kun. August 2013. ORIE. "Value of Information and Portfolio Decision Analysis." **One publication.** Currently Statistical Analyst at HomeAway.
2. Montiel, Luis V. May 2012. ORIE. "Approximations, Simulation, and Accuracy of Multivariate Discrete Probability Distributions in Decision Analysis." **Three publications.** Currently Post-Doctoral Researcher and Lecturer, The University of Texas at Austin.

Texas A&M University (1)

3. Kim, Seong Dae. May 2009. ISEN. "Roads or Radar: The Tradeoff between Investments in Infrastructure and Forecasting in the Face of Hurricane Risk." **Three publications.** Currently Assistant Professor, University of Alaska—Anchorage.

M.S. SUPERVISIONS COMPLETED (25):

The University of Texas (13)

1. Jo, Dohyn. May 2012. EER. "A Decision Analysis of an Oil Company's Retail Strategy in the Face of Electric Vehicle Penetration Uncertainty."
2. Ortega, Carlos Puerta. May 2012. EER. "A Value of Information Analysis of Permeability Data for Storage Capacity in a Carbon, Capture and Storage Project."
3. Agrawal, Shubham. May 2011. EER. "Decision Analysis and Risk Management: Application to Climate Change and Risk Detection."
4. Wymond, David Tyler. EER. "The U.S. Small Hydropower Industry: Opportunities for Development and Barriers to Success."
5. Schelee, Kyle. August 2011. ORIE. "Wind Forecast Verification: A Study in the Accuracy of Wind Forecasts Made by The Weather Channel and AccuWeather."
6. Hammond, Robert. August 2011. ORIE. "Decision Impact of Stochastic Price Models in the Petroleum Industry."
7. Hong Chul Ki. December 2010. EER. "Vertical Integration and Diversification Perspectives on Entry Decisions: Analysis of a Refiner's Decision to Enter the Market."
8. Arjun Ramakrishnan. May 2010. ORIE. "Value of Information and the Accuracy of Discrete Approximations."
9. Mozano, Jennifer M. May 2010. ORIE. "Deciding among Models: A Decision-Theoretic View of Model Complexity."
10. Agrawal, Shubham. December 2009. ORIE. "The Risk of Ending a Solar Radiation Management Program Abruptly."
11. Baca, Angel. December 2009. EER. "Carbon Capture and Storage Potential Contribution to Mitigate Climate Change."
12. Rebeiz, Paul R. May 2009. ORIE. "Capital Expansion Program under Price Capping Regulation."
13. Theeyattuparampil, Vijo V. May 2009. ORIE. "Analysis of Geoengineering Strategies."

Texas A&M University (12)

Industrial and Systems Engineering: 11

Ocean Engineering: 1

PH.D. SUPERVISIONS IN PROGRESS (3):

1. Hadlock, Chris, "System Reliability with Partial Information." Estimated graduation is May 2015 (not yet a candidate).
2. Huang, Tao, "Optimal Assessment Protocols in Decision Analysis." Estimated graduation is May 2015 (not yet a candidate).
3. Hammond, Robert, "The Accuracy of Discretizations in Decision Analysis." Estimated graduation is May 2014 (will apply for candidacy September 2013). **Three publications.**

Promotion Review
1a – CV

J. E. Bickel
Mechanical Engineering (ORIE)

M.S. SUPERVISIONS IN PROGRESS (1):

1. Mendoza-Nativida, Luis. "Value of Information in Oil & Gas Plays." Estimated graduation is May 2014.

DISSERTATION COMMITTEES (20):

The University of Texas (12)

Operations Research and Industrial Engineering: 5

Information, Risk, and Operations Management: 2

Civil Engineering: 2

Mechanical Engineering: 2

LBJ School of Public Affairs: 1

Texas A&M University (6)

Industrial and Systems Engineering: 2

Civil Engineering: 1

Petroleum Engineering: 3

University of Stavanger (2)

Petroleum Engineering: 2

THESIS COMMITTEES (21):

The University of Texas (8)

Operations Research and Industrial Engineering: 4

Petroleum and Geosystems Engineering: 2

Mechanical Engineering: 1

Statistics and Scientific Computation: 1

Texas A&M University (10)

Industrial and Systems Engineering: 6

Petroleum Engineering: 4

University of Stavanger (3)

Petroleum Engineering: 3

SUPERVISION OF UNDERGRADUATE RESEARCH PROJECTS (4):

The University of Texas

Management Science & Engineering Certificate: 3

Economics: 1

COURSES TAUGHT:

The University of Texas

ORI 390R.17: Decision Analysis (new course)

ORI 390R.1: Applied Probability

ORI 397K: Graduate Seminar

ORI 397: Applied Projects in OR/IE

ME 353: Engineering Finance

ME 335: Engineering Statistics (starting Fall 2013)

Stanford/UT Strategic Decision and Risk Management

Promotion Review
1a – CV

J. E. Bickel
Mechanical Engineering (ORIE)

Decision Quality

Decision Leadership

Decision Education Foundation

Decision Quality for Educators

Texas A&M University

INEN 627: Decision Analysis I (new course)

INEN 689: Engineering Analysis for Decision Making

INEN 459: Undergraduate Senior Design Course

INEN 303: Engineering Economics

VITA:

J. Eric Bickel is an assistant professor in the Graduate Program in Operations Research (Department of Mechanical Engineering) at The University of Texas at Austin. In addition, Professor Bickel is a fellow in the Center for Petroleum Asset Risk Management (CPARM). His research interests include the theory and practice of decision analysis and its application in the energy and climate-change arenas. His work has addressed the modeling of probabilistic dependence, value of information, scoring rules, calibration, risk preference, decision education, decision making in sports, and climate engineering as a response to climate change. Prior to returning to academia, Professor Bickel was a Senior Engagement Manager for Strategic Decisions Group. He has consulted around the world in a range of industries, including oil and gas, electricity generation/transmission/delivery, energy trading and marketing, commodity and specialty chemicals, life sciences, financial services, and metals and mining. Professor Bickel is the Vice President/President-Elect of the Decision Analysis Society. He holds an MS and PhD from the Department of Engineering-Economic Systems at Stanford University and a BS in Mechanical Engineering, with a minor in Economics, from New Mexico State University. Address: Graduate Program in Operations Research, 1 University Station, C2200, The University of Texas at Austin, Austin, Texas, 78712-0292; email: ebickel@mail.utexas.edu.

Promotion Review
1b – Co-Authored

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

CANDIDATE'S CO-AUTHORED WORKS (*=STUDENT)

Since 2008, I have co-authored 9 (of 24) papers, 8 (of 10) conference proceedings, 6 (of 6) book chapters, and 5 (of 7) technical reports where at least one author was not a student. I present these below, numbered according to my CV, and identify my contribution.

ARCHIVAL JOURNAL PUBLICATIONS (9)

2. Puerta-Ortega*, Carlos, J. Eric Bickel, and Susan Hovorka. 2013. "Assessing the value of permeability data in a carbon capture and storage project." *International Journal of Greenhouse Gas Control* 17 523-533. doi:10.1016/j.ijggc.2013.06.003.

Puerta-Ortega was an MS student in the EER program at UT. Between Bickel and Hovorka (Senior Research Scientist, Bureau of Economic Geology), I would allocate the labor and ideas underlying the paper as: Bickel 60% and Hovorka 40%.

9. Keller, L. Robin, Ali Abbas, J. Eric Bickel, et al. 2012. "From the Editors-Brainstorming, Multiplicative Utilities, Partial Information on Probabilities or Outcomes, and Regulatory Focus." *Decision Analysis* 9(4) 297-302. doi:10.1287/deca.1120.0255.

This paper is a summary that the editor-in-chief and associate editors (Ali Abbas, J. Eric Bickel, et. al are associate editors; Abbas is an associate professor at the University of Illinois – Urbana/Champaign) of *Decision Analysis* produce at the end of the year. This summary was written by the editor-in-chief, Prof. Robin Keller, with input and review by the associate editors. I estimate that my involvement in this particular paper is 5%. Of course, I spent considerable effort during the year handling a large fraction of the papers that appeared in the journal, which were summarized here.

13. Keller, L. Robin, Ali Abbas, J. Eric Bickel, et al. 2011. "From the Editors-Probability Scoring Rules, Ambiguity, Multiattribute Terrorist Utility, and Sensitivity Analysis." *Decision Analysis* 8(4) 251-255. doi: 10.1287/deca.1110.0222.

This paper is a summary that the editor-in-chief and associate editors of *Decision Analysis* produce at the end of the year. This summary was written by the editor-in-chief, Prof. Robin Keller, with input and review by the associate editors. I estimate that my involvement in this particular paper is 5%. Of course, I spent considerable effort during the year handling a large fraction of the papers that appeared in the journal, which were summarized here.

14. Bickel, J. Eric, Eric Floehr, and Seong Dae Kim*. 2011. "Comparing NWS PoP Forecasts to Third-Party Providers." *Monthly Weather Review* 139(10) 3304-3321. doi: 10.1175/2011MWR3525.1.

Seong Dae Kim is one of my PhD students. Dr. Eric Floehr is the founder and CEO of ForecastWatch, a company that archives weather forecasts and observations. Dr. Floehr provided the data used in the paper and wrote the portion of the paper describing the data gathering process. I would allocate the labor and ideas underlying the paper as: Bickel 50%, Floehr 30%, and Kim 20%.

15. Bickel, J. Eric, Larry W. Lake, and John Lehman. 2011. "Discretization, Simulation, and Swanson's (Inaccurate) Mean." *SPE Economics & Management* 3(3) 128-140. doi: 10.2118/148542-PA.

Promotion Review
1b – Co-Authored

J. E. Bickel
Mechanical Engineering (ORIE)

Larry Lake is a professor in Petroleum and Geosystems Engineering at The University of Texas at Austin. Dr. John Lehman is a consultant at Strategic Decisions Group. I would allocate the labor and ideas underlying the paper as: **Bickel 90%**, Lake 5%, and Lehman 5%.

18. Bratvold, Reidar, J. Eric Bickel, and Hans Petter Lohne. 2009. "Value of Information in the Oil and Gas Industry: Past, Present, and Future." *SPE Reservoir Evaluation & Engineering* 12(4) 630-638. doi: 10.2118/110378-PA.

Reidar Bratvold is professor in the Department of Petroleum Engineering at the University of Stavanger (Norway). Dr. Hans Petter Lohne is a research engineer at the International Research Institute of Stavanger. Dr. Lohne assisted with the literature review. Prof. Bratvold and I wrote the paper. I would allocate the labor and ideas underlying the paper as: **Bickel 50%**, Bratvold 30%, and Lohne 20%.

20. Bickel, J. Eric and Reidar Bratvold. 2008. "From Uncertainty Quantification to Decision Making in the Oil and Gas Industry." *Energy Exploration & Exploitation* 26(5) 311-325. doi: 10.1260/014459808787945344.

Reidar Bratvold is professor in the Department of Petroleum Engineering at the University of Stavanger (Norway). I conceived of the idea for this paper, designed a majority of the underlying survey, and wrote most of the paper. I would allocate the labor and ideas underlying the paper as: **Bickel 65%** and Bratvold 35%.

22. Bickel, J. Eric, Richard L. Gibson, Duane A. McVay, Stephen Pickering, and John Waggoner. 2008. "Quantifying the Reliability and Value of 3D Land Seismic." *SPE Reservoir Evaluation & Engineering* 11(5) 832-841. doi: 10.2118/102340-PA.

Prof. Richard Gibson is a professor in the Department of Geology and Geophysics at Texas A&M University. Prof. Duane McVay is a professor in the Department of Petroleum Geoenvironment at Texas A&M University. Messrs. Pickering and Waggoner worked in the sales division of WesternGeco, who funded this research. Prof. Gibson performed all the geophysics modeling for this paper. Prof. McVay ensured that we properly represented the reservoir engineering. I would allocate the labor and ideas underlying the paper as: **Bickel 40%**, Gibson 30%, McVay 20%, Pickering 5%, and Waggoner 5%.

24. Bickel, J. Eric, James E. Smith, and Jennifer L. Meyer. 2008. "Modeling Dependence Among Geologic Risks in Sequential Exploration Decisions." *SPE Reservoir Evaluation & Engineering* 11(2) 352-361. doi: 10.2118/102369-PA.

Prof. James Smith is a professor at the Fuqua School of Business at Duke University. Dr. Jennifer Meyer is a consultant at Strategic Decisions Group (SDG). The idea for this paper originated from a project that Dr. Meyer and I worked on for SDG. Prof. Smith later helped me generalize my work and publish it (this was one of my first papers). I would allocate the labor and ideas underlying the paper as: **Bickel 48%**, Smith 48%, and Meyer 4%.

REFEREED CONFERENCE PROCEEDINGS (1)

1. Canion*, B., E. Bickel, C. Hadlock*, D. Morton, and E. Schneider. 2013. "Game Theoretic Analysis of Physical Protection System Design." *Proceedings of GLOBAL 2013*, September 29 – October 3.

B. Canion and C. Hadlock are students in Mechanical Engineering and ORIE, respectively. Among Bickel, Morton (Professor, Operations Research / Industrial Engineering, UT Austin), and Schneider

Promotion Review
1b – Co-Authored

J. E. Bickel
Mechanical Engineering (ORIE)

(Associate Professor, Mechanical Engineering, UT Austin), I would allocate the labor and ideas underlying the paper as: **Bickel 20%**, Morton 40%, and Schneider 40%.

NON-REFEREED CONFERENCE PROCEEDINGS (7)

1. Kullawan*, K., R. Bratvold and J. E. Bickel. 2013. "Integration of Bayesian Decision-Making Into Geosteering Practices." Paper SPE 167433-MS presented at the SPE Middle East Intelligent Energy Conference and Exhibition, Duhai, UAE, 28-30 October.

R. Bratvold is professor in the Department of Petroleum Engineering at the University of Stavanger (Norway). K. Kullawan is his student. Between Bickel and Bratvold, I would allocate the labor and ideas underlying the paper as: **Bickel 45%** and Bratvold 55%.

2. Thomas*, Philip, Reidar Bratvold, and J. Eric Bickel. 2013. "The Risk of Using Risk Matrices." Paper SPE 166269-MS presented at the SPE Annual Technical Conference and Exhibition, New Orleans, Louisiana, 30 September – 02 October.

R. Bratvold is professor in the Department of Petroleum Engineering at the University of Stavanger (Norway). Philip Thomas is his student. I conceived of the idea for this paper, suggested much of the analysis, and wrote most of the paper. Between Bickel and Bratvold, I would allocate the labor and ideas underlying the paper as: **Bickel 60%** and Bratvold 40%.

3. Gong*, X., D. A. McVay, J. E. Bickel, and L. Montiel*. 2011. "Integrated Reservoir and Decision Modeling To Optimize Northern Barnett Shale Development Strategies." Paper CSUG/SPE 149459 presented at the Canadian Unconventional Resources & International Petroleum Conference, Calgary, Alberta, Canada, 15-17 November.

This conference proceeding represents the work of two students: Messrs. Gong and Montiel. Mr. Gong's advisor was Prof. McVay (Texas A&M). I was Mr. Montiel's advisor. Between Bickel and McVay, I would allocate the labor and ideas underlying the paper as: **Bickel 50%** and McVay 50%.

5. Turkarslan*, G., D. A. McVay, J. E. Bickel, L. Montiel*, and R. Ortiz*. 2010. "Integrated Reservoir and Decision Modeling to Optimize Spacing in Unconventional Gas Reservoirs." Paper CSUG/SPE 137816 presented at the Canadian Unconventional Resources & International Petroleum Conference, Calgary, Alberta, Canada, 19-21 October.

This conference proceeding represents the work of three students: Messrs. Turkarslan, Montiel, and Ortiz. Messrs. Turkarslan's and Gong's advisor was Prof. McVay (Texas A&M). I was Mr. Montiel's advisor. Between Bickel and McVay, I would allocate the labor and ideas underlying the paper as: **Bickel 50%** and McVay 50%.

6. Bickel, J. Eric, Eric Floehr, and Seong Dae Kim*. 2010. "Comparing NWS POP Forecasts to Third-Party Providers." Paper AMS 161669, presented at the 20th Conference on Probability and Statistics, 90th American Meteorological Society Annual Meeting, Atlanta, Georgia, 18 January.

This conference proceeding is an earlier version of paper [14], described above. The labor allocations are the same as that paper: **Bickel 50%**, Floehr 30%, and Kim 20%.

7. Yu*, O.-Y., S. D. Guikema, J. E. Bickel, J.-L. Briaud, and D. B. Burnett. 2009. "Systems Approach and Quantitative Decision Tools for Technology Selection in Environmentally Friendly Drilling."

Promotion Review
1b – Co-Authored

J. E. Bickel
Mechanical Engineering (ORIE)

paper SPE 120848 presented at the SPE Environmental & Safety Conference, San Antonio, Texas, 23-25 March.

This conference proceeding describes the work of Mr. Yu, who was a PhD student at Texas A&M. Prof. Guikema (now at Johns Hopkins) and Prof. Briaud were faculty members in the Department of Civil Engineering at Texas A&M. Prof. Burnett was a professor in the Department of Petroleum Engineering at Texas A&M. Prof. Burnett's research grant funded this work. Among Bickel, Guikema, Briaud, and Burnett, I would allocate the labor and ideas underlying the paper as: **Bickel 20%**, Guikema 40%, Briaud 20%, and Burnett 20%.

8. Arcos*, D., D. Zhu, and J. E. Bickel. 2008. "Technical, Economic and Risk Analysis for a Multilateral Well." Paper SPE 115099 presented at the SPE Russian Oil and Gas Technical Conference and Exhibition, Moscow, Russia, 28-30 October.

This conference proceeding describes the work of Ms. Arco, who was a PhD student at Texas A&M. Her advisor was Prof. Zhu, who is a professor in the Department of Petroleum Engineering at Texas A&M. Between Zhu and Bickel, I would allocate the labor and ideas underlying the paper as: **Bickel 10%** and Zhu 90%.

OTHER PUBLICATIONS (2)

1. Pickering, Steve and J. Eric Bickel. 2006. "The Value of Seismic Information." *Oil and Gas Financial Journal* 3(5) 26-33.

Steve Pickering is a geologist with Schlumberger. This paper appeared in an industry trade publication with the hopes of increasing the awareness of value of information techniques and their application in the oil and gas industry. I would allocate the labor and ideas underlying the paper as: **Bickel 70%** and Pickering 30%.

2. Bickel, J. Eric and Dean Stotz. 2003. "To 'Take' or 'Not to Take': What's on Your Plate." *Coach and Athletic Director*, November, 21-24.

Dean Stotz is the Associate Head Baseball Coach at Stanford University. This paper appeared in a popular magazine for coaches. I wrote the paper to help market my software ChartMine®, which was used by 300 college programs (including UT) and ESPN. I would allocate the labor and ideas underlying the paper as: **Bickel 80%** and Stotz 20%.

BOOK CHAPTERS (6)

1. Bickel, J. Eric and Lee Lane. 2013. "Climate Engineering: Climate Engineering R&D." In: *Global Problems, Smart Solutions*, Bjørn Lomborg (ed.). Cambridge University Press: Cambridge, UK. 752 pages.

Lee Lane is a Visiting Fellow at the Hudson Institute. I performed all the economic analysis underlying the paper. Mr. Lane focused on the policy implications. I would allocate the labor and ideas underlying the paper as: **Bickel 50%** and Lane 50%.

2. Bickel, J. Eric and Lee Lane. 2013. "CLIMATE ENGINEERING AND R&D." In: *How to Spend \$75 Billion to Make the World a Better Place*, pp. 135-136. Bjørn Lomborg . Copenhagen Consensus

Lee Lane is a Visiting Fellow at the Hudson Institute. I performed all the economic analysis underlying the paper. Mr. Lane focused on the policy implications. I would allocate the labor and ideas underlying the paper as: **Bickel 50%** and Lane 50%.

Promotion Review
1b – Co-Author

J. E. Bickel
Mechanical Engineering (ORIE)

3. Bickel, J. Eric, James E. Smith, and Jennifer L. Meyer. 2011. "Modeling Dependence Among Geologic Risks in Sequential Exploration Decisions." In: *Decision Analysis in E&P*, pp. 148-157. Frank Koch (ed.). Society of Petroleum Engineers, Richardson, Texas. 210 pages.

This book is a collection of the best decision analysis papers published in the SPE literature. This chapter is a reprint of paper [24] above. The allocation is the same as that paper: **Bickel 48%**, Smith 48%, and Meyer 4%

4. Bratvold, Reidar B., J. Eric Bickel, and Hans Petter Lohne. 2011. "Value of Information in the Oil and Gas Industry: Past, Present, and Future." In: *Decision Analysis in E&P*, pp. 158-166. Frank Koch (ed.). Society of Petroleum Engineers, Richardson, Texas. 210 pages.

This book is a collection of the best decision analysis papers published in the SPE literature. This chapter is a reprint of paper [18] above. The allocation is the same as that paper: **Bickel 50%**, Bratvold 30%, and Lohne 20%.

5. Bickel, J. E., R. L. Gibson, D. A. McVay, S. Pickering, and J. Waggoner. 2011. "Quantifying 3D Land Seismic Reliability and Value." In: *Decision Analysis in E&P*, pp. 167-175. Frank Koch (ed.). Society of Petroleum Engineers, Richardson, Texas. 210 pages.

This book is a collection of the best decision analysis papers published in the SPE literature. This chapter is a reprint of paper [22] above. The allocation is the same as that paper: **Bickel 40%**, Gibson 30%, McVay 20%, Pickering 5%, and Waggoner 5%.

6. Bickel, J. Eric and Lee Lane. 2010. "Climate Engineering." In: *Smart Solutions for Climate Change: Comparing Costs and Benefits*, pp. 5-51. Bjørn Lomborg (ed.). Cambridge University Press: Cambridge, UK. 436 pages.

Lee Lane is a Visiting Fellow at the Hudson Institute. I performed all the economic analysis underlying the paper. Mr. Lane focused on the policy implications. I would allocate the labor and ideas underlying the paper as: **Bickel 50%** and Lane 50%.

TECHNICAL REPORTS (5)

2. Lane, Lee and J. Eric Bickel. 2013. "Solar Radiation Management: An Evolving Climate Policy Option." American Enterprise Institute for Public Policy Research.

Lee Lane is a Visiting Fellow at the Hudson Institute. I performed all the economic analysis underlying the paper. Mr. Lane focused on the policy implications. I would allocate the labor and ideas underlying the paper as: **Bickel 50%** and Lane 50%.

3. Cipiti, B. B., S. E. Jordan, G. D. Wyss, T. G. Lewis III, F. A. Duran, C. Hadlock*, B. Canion*, E. Schneider, E. Bickel, D. Morton. 2012. "Risk-Informed Analysis and Game Theory Applied to Small Modular Reactor Security." Sandia National Laboratories Technical Report SAND2012-10814, December 2012 (official use only).

The UT team (Hadlock, Canion, Schneider, Bickel, and Morton) contributed to a larger Sandia report. Cipiti, Jordan, Wyss, Lewis, and Duran are Sandia employees. Hadlock and Canion are students. Morton and Schneider are UT Austin professors. I would allocate the labor and ideas among Schneider, Bickel, and Morton as: Schneider 40%, **Bickel 20%**, and Morton 40%.

Promotion Review
1b – Co-Authored

J. E. Bickel
Mechanical Engineering (ORIE)

4. Bickel, J. Eric and Lee Lane. 2012. "Climate Change: Climate Engineering Research." Copenhagen Consensus 2012. Copenhagen Consensus Center, Copenhagen, Denmark.

Lee Lane is a Visiting Fellow at the Hudson Institute. I performed all the economic analysis underlying the paper. Mr. Lane focused on the policy implications. I would allocate the labor and ideas underlying the paper as: **Bickel 50%** and Lane 50%.

6. Lane, Lee and J. Eric Bickel. 2009. "Solar Radiation Management and Rethinking the Goals of COP-15." In: Lane, Lee, J. Eric Bickel, I. Galiana, C. Green, and V. Bosetti, Introduction by Bjørn Lomborg, Copenhagen Consensus on Climate: Advice for Policy Makers. <http://fixtheclimate.com/>

Lee Lane is a Visiting Fellow at the Hudson Institute. I performed all the economic analysis underlying the paper. Mr. Lane focused on the policy implications. I would allocate the labor and ideas underlying the paper as: **Bickel 50%** and Lane 50%.

7. Bickel, J. Eric and Lee Lane. 2009. "An Analysis of Climate Engineering as a Response to Climate Change." Copenhagen Consensus on Climate. Copenhagen Consensus Center, Copenhagen, Denmark. <http://fixtheclimate.com/>

Lee Lane is a Visiting Fellow at the Hudson Institute. I performed all the economic analysis underlying the paper. Mr. Lane focused on the policy implications. I would allocate the labor and ideas underlying the paper as: **Bickel 50%** and Lane 50%.

Promotion Review
1c – Forthcoming

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

CANDIDATE'S WORKS FORTHCOMING

The following journal papers and book chapters (numbered according to my CV) have been accepted, but have not appeared yet in print. If they are available online, their doi number is given.

ARCHIVAL JOURNAL PUBLICATIONS (*=STUDENT)

12. Montiel*, Luis V. and J. Eric Bickel. 2012. "Generating a Random Collection of Discrete Joint Probability Distributions Subject to Partial Information." Forthcoming in *Methodology and Computing in Applied Probability*. doi: 10.1007/s11009-012-9292-9.

BOOK CHAPTERS

1. Bickel, J. Eric and Lee Lane. 2013. "Climate Engineering R&D." In: *Global Problems, Smart Solutions*, Bjørn Lomborg (ed.). Cambridge University Press: Cambridge, UK. 752 pages.

Bickel, J. Eric

From: Kasper Thede Anderskov <hta.ccc@cbs.dk>
Sent: Monday, May 21, 2012 3:28 PM
To: Bickel, J. Eric; Lee Lane (llane@hudson.org)
Cc: David Young; Sibylle Christina Aebi
Subject: Your final edits for the CC12 Book Publication
Attachments: Climate Engineering_Challenge_Bickel_Lane_120504_Final.doc

Importance: High

Dear Eric and Lee

Thank you for your participation in Copenhagen Consensus 2012. The conference in Copenhagen earlier this month was a great success and your contribution played a key role. The outcome document is available at the [CC12 project website](#) where you will also find all of the research papers.

We are happy to let you know that Cambridge University Press is interested in publishing the complete body of CC12 research including your findings as a book.

As promised you are therefore getting a chance in the next few weeks to make final edits to your paper. The edits should be kept at a minimum. Changes should not be made to your benefit-cost ratios or to major structural components of your paper.

We are on a tight timeframe, and ask that you please provide us with your edited version before June 8, 2012. If we do not receive an updated document from you by this date we will assume that you do not wish to make any further edits and we will use the version that you have submitted already. We will send all documents to CUP in June 2012 and this will start the Copy editing process. The CUP production managers may get back to you with smaller queries to your paper after this date. If all goes well the very rough estimate for publication date is spring 2013.

To assist with this task, I attach your most recent paper version which is also published on our website. (If you have not started making your edits I ask you to kindly make your potential edits to this attached version.)

Looking forward to hearing from you and to your potentially edited paper.

Best wishes,
Kasper

Kasper Thede Anderskov
Project Manager
Copenhagen Consensus Center
Copenhagen Business School
+45 2232 1222 (mobile)
Skype: kasperthedeanderskov

Solbjerg Plads 3, B3
DK-2000 Frederiksberg
Denmark

Bickel, J. Eric

From: em.mcap.0.2aca71.c8130ddc@editorialmanager.com on behalf of Methodology & Computing in Applied Probability <jeyel.tecson@springer.com>
Sent: Tuesday, May 1, 2012 7:28 PM
To: Bickel, J. Eric
Subject: Decision on your manuscript #MCAP-590

Dear Professor Bickel:

We are pleased to inform you that your manuscript, "Generating a Random Collection of Discrete Joint Probability Distributions Subject to Partial Information" has been accepted for publication in Methodology and Computing in Applied Probability.

For queries regarding your accepted paper, please click the following link <http://www.springer.com/11009>; then click on "Contacts", and then "Production Editor", complete the query form and click "Submit".

Best regards,

The Editorial Office
Methodology and Computing in Applied Probability

Promotion Review
le – Leaves

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

CANIDATE'S LEAVES OF ABSENCE WITHOUT PAY

I have not taken any leaves of absence.

Promotion Review
0 – Summary

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

PROMOTION SUMMARY TABLES

| Research & Scholarship | | | |
|-----------------------------------|------------------|-----------------|--------------|
| Metric | 2008-2013 | Previous | Total |
| <u>Publications</u> | | | |
| Refereed Journal Publications | 24 | 6 | 30 |
| Refereed Manuscripts in Review | 7 | - | 7 |
| Manuscripts in Preparation | 3 | - | 3 |
| Refereed Conference Proceedings | 2 | 0 | 2 |
| Non-Refereed Conf. Proceedings | 8 | 9 | 17 |
| Other Publications | 0 | 2 | 2 |
| Book Chapters | 6 | 0 | 6 |
| Technical Reports | 7 | 0 | 7 |
| Total | 57 | 17 | 74 |
| <u>Oral Presentations</u> | | | |
| Invited Lectures | 14 | 10 | 24 |
| Conference Presentations | 21 | 26 | 47 |
| Total | 35 | 36 | 71 |
| Documentary Appearances | 1 | 0 | 1 |

| Citation Metrics | Google Scholar | ISI |
|-------------------------|-----------------------|------------|
| Papers Included | 47 | 16 |
| Total Citations | 295 | 31 |
| Citations per Paper | 6.3 | 1.9 |
| h-index | 8 | 3 |
| i10-index | 8 | - |

Note: ISI does not include two important journals in my area. Further, my primary outlet, *Decision Analysts* was not listed in ISI until 2009.

| Candidate Funding Selectivity / Diversity | | |
|--|-------------|-----|
| <u>NSF CAREER Awards</u> | | |
| 1 | | |
| <u>Fraction of Candidate Funding</u> | | |
| Peer-Reviewed | \$954,534 | 60% |
| Sole-PI | \$1,089,802 | 68% |
| Federal Sources | \$924,534 | 58% |
| Private Sources | \$511,477 | 32% |
| State Sources | \$94,000 | 6% |
| International Sources | \$69,325 | 4% |

| Grants and Contracts | | | |
|----------------------------------|------------------|-----------------|--------------|
| Metric | 2008-2013 | Previous | Total |
| Research Funding | \$ 4,042,636 | \$ 215,000 | \$ 4,257,636 |
| PI-Share of Research Funding | \$ 1,454,336 | \$ 145,000 | \$ 1,599,336 |
| Number of Grants/Contracts | 15 | 4 | 19 |
| Number of Grants/Contracts as PI | 11 | 4 | 15 |

| Teaching | | |
|----------------------|-----------------|------------------|
| Metric | Graduate | Undergrad |
| Courses Taught | 390R.1/R.17 | ME 353 |
| # of Students Taught | 246 | 688 |
| Avg Instructor Eval. | 4.3 | 3.6 |
| Avg Course Eval | 4.2 | 3.4 |

| Advising | | | |
|---------------------------|------------------|-----------------|--------------|
| Metric | 2008-2013 | Previous | Total |
| PhD Students Completed | 2 | 1 | 3 |
| PhD Students in Pipeline | 3 | - | 3 |
| MS Students Completed | 13 | 12 | 25 |
| MS Students in Pipeline | 1 | - | 1 |
| Undergraduates Supervised | 4 | 0 | 4 |

| Service | |
|---------------------------------------|----|
| Pres.-Elect DA Society (1200 members) | 1 |
| Society Board of Directors | 1 |
| Journal Editorial Boards | 2 |
| Associate Editor Positions | 2 |
| Manuscript Reviews | 70 |
| Conferences Chaired | 1 |
| Departmental Committees | 4 |
| College Committees | 2 |

Faculty Annual Report for Year Ending August 31, 2011

Bickel, J. Eric
Assistant Professor

Department of Mechanical Engineering

Part 1: Teaching Activities

COURSES TAUGHT

ORI 999R, Dissertation (9 credits) offered in Fall 2010.
ORI 698B, Thesis (6 credits) offered in Fall 2010.
ORI 680M, Research (6 credits) offered in Fall 2010.
ORI 397M, GRADUATE RESEARCH INTERNSHIP (3 credits) offered in Fall 2010.
ME 353, Engineering Economic Analysis (3 credits) offered in Fall 2010.
ORI 999W, Dissertation (9 credits) offered in Spring 2011.
ORI 980M, Research (9 credits) offered in Spring 2011.
ORI 698B, Thesis (6 credits) offered in Spring 2011.
ORI 397, Graduate Seminar (3 credits) offered in Spring 2011.
ME 353, Engineering Economic Analysis (3 credits) offered in Spring 2011.
ORI W698B, Thesis (6 credits) offered in Summer 2011.
ORI W399W, DISSERTATION (3 credits) offered in Summer 2011.
ORI W398R, MASTER'S REPORT (3 credits) offered in Summer 2011.
ORI W380M, RESEARCH (3 credits) offered in Summer 2011.

PH.D. SUPERVISION COMPLETED

M.S. SUPERVISION COMPLETED

David Tyler Wymond, EER, 9/1/09 -5/31/11,
"The U.S. Small Hydropower Industry: Opportunities for Development and Barriers to Success".
KI, HONG CHUL -Fall 2010,
"VERTICAL INTEGRATION AND DIVERSIFICATION PERSPECTIVES ON ENTRY DECISIONS:
ANALYSIS OF A REFINER'S DECISION TO ENTER E&".
Kyle Schelee, ORIE, 9/1/09 -8/31/11,
"Wind Forecast Verification: A Study in the Accuracy of Wind Forecasts Made by The Weather Channel and
AccuWeather".
Robert Hammond, ORIE, 9/1/09 -8/31/11,
"Decision Impact of Stochastic Price Models in the Petroleum Industry".
Shbham Agrawal, EER, 9/1/10 -8/31/11,
"Decision Analysis and Risk Management: Application to Climate Change and Risk Detection".

PH.D. SUPERVISION IN PROGRESS

Kun Zan, ORIE, 09/01/08-present,
"Value of Information and Portfolio Decision Analysis".
Luis Montiel, ORIE, 09/01/08-present,
"Approximations, Simulation, and Accuracy of Multivariate Discrete Probability Distributions in Decision

Analysis".

M.S. SUPERVISION IN PROGRESS

Ahmed Waheed, ORIE, 9/1/10 - present,
"Calibration of POP Forecasts in Houston, Texas".

Dohyun Jo, EER, 9/1/11 - present,
"A Decision Analysis of an Oil Company's Retail Strategy in the Face of Electric Vehicle Penetration Uncertainty".

David Tyler Wymond, EER, 9/1/09 -5/31/11,
"The U.S. Small Hydropower Industry: Opportunities for Development and Barriers to Success".

KI, HONG CHUL -Fall 2010,
"VERTICAL INTEGRATION AND DIVERSIFICATION PERSPECTIVES ON ENTRY DECISIONS:
ANALYSIS OF A REFINER'S DECISION TO ENTER E&".

Kyle Schelee, ORIE, 9/1/09 -8/31/11,
"Wind Forecast Verification: A Study in the Accuracy of Wind Forecasts Made by The Weather Channel and AccuWeather ".

Robert Hammond, ORIE, 9/1/09 -8/31/11,
"Decision Impact of Stochastic Price Models in the Petroleum Industry".

Shbham Agrawal, EER, 9/1/10 -8/31/11,
"Decision Analysis and Risk Management: Application to Climate Change and Risk Detection".

OTHER STUDENT RESEARCH SUPERVISION

Jiun-Yih Chen, Civil Engr., 9/1/08 -5/31/11,
"Analysis of Performance and Reliability of Offshore Pile Foundation Systems based on Hurricane Loading" -
Ph.D. Committee Member (completed).

Tian Wang, IROM, 9/1/08 -5/31/11,
"MULTIVARIATE REAL OPTIONS EVALUATION" - Ph.D. Committee Member (completed).

PARRA SANCHEZ, CRISTINA -Fall 2010,
"A LIFE CYCLE OPTIMIZATION APPROACH TO HYDROCARBON RECOVERY" - M.S. Member
(completed).

LIMA, LUANA M.M. - Ph.D. Committee Member (in progress).

Stuart M. Cohen, ME, 9/1/09-present,
"Flexibility and CO2 Capture" - Ph.D. Committee Member (in progress).

STUDENT ORGANIZATION ADVISOR

***ADDITIONAL TEACHING ACTIVITIES**

Part 2: Administrative Positions/Committees

ADMINISTRATIVE COMMITTEES

Graduate Admissions Advisor, Graduate Student Recruiting Committee, Mechanical Engineering (ORIE),
9/1/10 - 8/31/11.

UNIVERSITY COMMITTEES

SCHOOL COMMITTEES

DEPARTMENT COMMITTEES

Graduate Studies Committee, ORIE, 9/1/10-8/31/11.
Graduate Studies Committee, PGE, 9/1/10-8/31/11.
Graduate Studies Committee, Division of Statistics + Scientific Computation, 9/1/10-8/31/11.
Graduate Studies Committee, EER, 9/1/10-8/31/11.
Member, GSRC, ME, 9/1/10-8/31/11.

OUTSIDE COMMITTEES

Chairman, DAS Wikipedia Page Redesign, Decision Analysis Society, 9/1/10-8/31/11.
Member, Knowledge Sharing, Society of Decision Professionals, 9/1/10-8/31/11.
Member, Board of Directors, Society of Decision Professionals, 9/1/10-8/31/11.

CONFERENCES CHAIRED/ORGANIZED

Cluster Chair, INFORMS SpORts Track, Austin, Texas, 2010.

JOURNAL EDITORSHIPS & EDITORIAL BOARDS

Associate Editor, *Decision Analysis*, INFORMS, 9/1/10-8/31/11.
Associate Technical Editor, *SPE Economics & Management*, Society of Petroleum Engineers, 9/1/10-8/31/11.
Member - Honorary Editorial Advisory Board, *Decision Analysis*, INFORMS, 9/1/10-8/31/11.

Part 3: Contributions to Technology

REFEREED ARCHIVAL JOURNAL

J. Eric Bickel, Larry W. Lake, and John Lehman, "Discretization, Simulation, and Swanson's (Inaccurate) Mean", *SPE Economics & Management*, Vol. 3, No. 3, 2011, pp. 128-140.
Kim, Seong Dae and J. Eric Bickel, "Roads or Radar: The Tradeoff between Investments in Infrastructure and Forecasting when Facing Hurricane Risk", *IEEE Systems Journal*, Vol. 4, No. 3, 2010, pp. 363-375.
J. Eric Bickel, "Scoring Rules and Decision Analysis Education", *Decision Analysis*, Vol. 7, No. 4, 2010, pp. 346-357.

REFEREED CONFERENCE, SYMPOSIA AND WORKSHOPS PROCEEDINGS

OTHER MAJOR PUBLICATIONS

NON-REFEREED CONFERENCE, SYMPOSIA AND WORKSHOPS PROCEEDINGS

Turkarslan, G., D. A. McVay, J. E. Bickel, L. Montiel, and R. Ortiz, "Integrated Reservoir and Decision Modeling to Optimize Spacing in Unconventional Gas Reservoirs," *Canadian Unconventional Resources & International Petroleum Conference*, Calgary, Alberta, Canada, published by SPE, October 19-21, 2010, pp SPE 137816.

BOOK, BOOK CHAPTERS, EDITOR(S) OF BOOKS

PROPOSAL/MANUSCRIPT REVIEWER

"Manuscript", *Decision Analysis*: 8

"Manuscript", Management Science: 1
"Manuscript", SPE Economics & Management: 3
"Manuscript", AAPG Bulletin: 1
"Manuscript", Computers and Industrial Engineering: 1
"Manuscript", The Engineering Economist: 1
"Proceeding", ASME: 1
"Manuscript", Journal of Energy Exploration and Exploitation: 1

***TECHNICAL REPORTS**

ORAL PRESENTATIONS

J. Eric Bickel, "Discretization, Simulation, and Swanson's (Inaccurate) Mean," Houston, Texas, April 21-22, 2010, (DAAG Annual Conference).
J. Eric Bickel, "Normative Corporate Risk Aversion," Austin, Texas, November 9, 2010, (INFORMS Annual Conference).
J. Eric Bickel and Arjun Ramakrishnan, "Discretization and Value of Information," Austin, Texas, November 6, 2010, (INFORMS Annual Conference).
J. Eric Bickel, "The Climate Engineering Option," University of Michigan,, September 22.
J. Eric Bickel, "Modeling Probabilistic Dependence," IBM Research, Waston Research Lab, February 4, 2011.

PATENTS ISSUED

OTHER PROFESSIONAL HIGHLIGHTS

Documentary Appearance: Cool It. 2010. Directed by Ondi Timoner. Distributed by Roadside Attractions and 1019 Entertainment. Based on the book by Bjørn Lomborg. My research into geoengineering is featured and I make a short appearance., 2010.

Featured by INFORMS in their podcast series "The Science of Better." List, Barry. January 14, 2011. "Will Geoengineering Rescue us from Climate Change?" <http://www.scienceofbetter.org/podcast/bickel.html>, 2011.

Part 4: Research Activities/Grants & Contracts

DESCRIPTION OF CURRENT RESEARCH

My research is focused in two broad areas: methodological improvements in decision making and applications to energy and climate policy. In terms of methodological improvements, I am focused on the modeling of probabilistic dependence, value of information, scoring rules, discretization, and stochastic price models. In terms of applications to energy and climate policy, I am focused on the use of climate engineering as a response to climate change, valuing monitoring programs in carbon capture and storage, understanding the impact of fugitive methane emissions, and helping the oil and gas industry better prevent and respond to blowouts.

NEW AND CONTINUING PROJECTS FUNDED

NSF, "CAREER: Accurate and Efficient Modeling of Probabilistic Dependence and its Impact on Decision Making Under Uncertainty", with J. Eric Bickel, \$400,000, New, (19-7900-10), (9/1/2010-8/31/2015).

Department of Energy, RPSEA, "Optimizing Development Strategies to Increase Reserves in Unconventional Gas Reservoirs", with D. McVay, \$394,606, New, (26-3206-77), (12/1/2008-12/31/2011).

National Science Foundation, CMMI, SEE, "SGER: Resource Allocation and the Value of Information", with Bickel, J. Eric , \$120,000, New, (200802846-001), (12/1/2008-12/31/2010).

University of Texas at Austin, "Graduate School Diversity Mentoring Fellowship", with J. Eric Bickel, \$24,000, Completed, (09/01/2009-08/31/2010).

Applied Materials, "PROCEED", \$10,000, New, (30-2110-49), (9/1/10-8/31/15).

DOE NETL, "Developing comprehensive risk assesment frameworks for Geological storage of CO2", \$1,996,132, Continuing, (26-0836-60), (10/01/2009-07/13/2014).

Ford Motor Company, "PROCEED", \$10,000, New, (30-2110-36), (9/1/10-8/31/15).

Part 5: Continuing Education

SHORT COURSES (ORGANIZED, TAUGHT, ATTENDED)

WORKSHOPS (ORGANIZED, PARTICIPATED, ATTENDED)

CONFERENCES ATTENDED

"INFORMS Annual Conference", INFORMS, Austin, TX, USA, Nov 7-10, 2010.

"NSF Grantees Conference", NSF, Atlanta, GA, USA, Jan 4-7, 2011.

Part 6: Engineering Recognition

HONORS AND AWARDS

***PROFESSIONAL MEMBERSHIPS**

Member, American Meteorological Society, 2005-Present.

Fellow, Society of Decision Professionals, 2010-Present.

Member, Decision Analysis Society, 1994-Present.

Member, Energy, Natural Resources, and the Environment Section, 2005-Present.

Member, Institute for Operations Research and the Management Sciences, 1994-Present.

Member, Institute of Industrial Engineers, 2004-Present.

Member, Mensa, 1993-Present.

Member, Society of Petroleum Engineers, 2004-Present.

Member, Society of Exploration Geophysicists, 2005-Present.

Member, INFORMS Sports Section, 2005-Present.

Member, Society for American Baseball Research, 1995-Present.

Member, American Society of Mechanical Engineers, 2008-Present.

Part 7: Community Activities: (Professional Service Only)

COMMUNITY ACTIVITIES

Part 8: Professional Experience

PROFESSIONAL REGISTRATION

New Mexico, Engineer in Training.

CONSULTING

*** ADDITIONAL FACULTY COMMENTS**

Faculty Annual Report for Year Ending August 31, 2012

Bickel, J. Eric
Assistant Professor

Department of Mechanical Engineering

Part 1: Teaching Activities

COURSES TAUGHT

ORI 680M, RESEARCH (6 credits) offered in Fall 2011.
ORI 390R, Applied Probability (3 credits) offered in Fall 2011.
ME 353, ENGINEERING FINANCE (3 credits) offered in Fall 2011.
ME 353, ENGINEERING FINANCE (3 credits) offered in Fall 2011.
ME 353, ENGINEERING FINANCE (3 credits) offered in Fall 2011.
ME 353, ENGINEERING FINANCE (3 credits) offered in Fall 2011.
ME 353, ENGINEERING FINANCE (3 credits) offered in Fall 2011.
ME 353, ENGINEERING FINANCE (3 credits) offered in Fall 2011.
ME 353, Engineering Finance (3 credits) offered in Fall 2011.
ORI 999W, DISSERTATION (9 credits) offered in Fall 2012.
ORI 999W, DISSERTATION (9 credits) offered in Spring 2012.
ORI 980M, RESEARCH (9 credits) offered in Spring 2012.
ORI 680M, RESEARCH (6 credits) offered in Spring 2012.
ORI 397, DECISION ANALYSIS (3 credits) offered in Spring 2012.
ME 377K, PROJECTS IN MECHANICAL ENGR (3 credits) offered in Spring 2012.
ORI W399R, DISSERTATION (3 credits) offered in Summer 2012.

PH.D. SUPERVISION COMPLETED

Luis V. Montiel, Operations Research and Industrial Engineering, 9/1/09 -5/31/12,
"Approximations, Simulation, and Accuracy of Multivariate Discrete Probability Distributions in Decision Analysis".

M.S. SUPERVISION COMPLETED

Carlos Puerta Ortega, Energy and Earth Resources, 9/1/09 -5/15/12,
"A Value of Information Analysis of Permeability Data in a Carbon Capture and Storage Project".
JO, DOHYUN, Energy and Earth Resources -Spring 2012,
"A DECISION ANALYSIS OF AN OIL COMPANY'S RETAIL STRATEGY IN THE FACE OF ELECTRIC VEHICLE PENETRATION UNCERTAINTY".

PH.D. SUPERVISION IN PROGRESS

Kun Zan, Operations Research and Industrial Engineering, 9/1/08-present,
"Value of Information and Portfolio Decision Analysis".
Robert Hammond, Operations Research and Industrial Engineering, 9/1/11-present,
"The Accuracy of Discretization in Decision Analysis".
Tao Huang, Operations Research and Industrial Engineering, 9/1/12-present,
"Optimal Assessment Protocols in Decision Analysis".
Luis V. Montiel, Operations Research and Industrial Engineering, 9/1/09 -5/31/12,
"Approximations, Simulation, and Accuracy of Multivariate Discrete Probability Distributions in Decision Analysis".

M.S. SUPERVISION IN PROGRESS

Carlos Puerta Ortega, Energy and Earth Resources, 9/1/09 -5/15/12,
"A Value of Information Analysis of Permeability Data in a Carbon Capture and Storage Project".
JO, DOHYUN, Energy and Earth Resources -Spring 2012,
"A DECISION ANALYSIS OF AN OIL COMPANY'S RETAIL STRATEGY IN THE FACE OF ELECTRIC VEHICLE PENETRATION UNCERTAINTY".

OTHER STUDENT RESEARCH SUPERVISION

Michael Aragon, Undergraduate Research Project in MS&E Program, 2010-2011.
Michael Yoho, Undergraduate Research Project in MS&E Program, 2010-2011.
Jing Zan, Operations Research and Industrial Engineering, 9/1/09 -12/15/11,
"Stang Service Centers Under Arrival-rate Uncertainty" - Ph.D. Committee Member (completed).
Luana Medeiros Marangon Lima, Operations Research and Industrial Engineering -December 2011,
"Modeling and Forecast of Brazilian Reservoir Inflows via Dynamic Linear Models under Climate Change Scenarios" - Ph.D. Committee Member (completed).
Stuart M. Cohen, Mechanical Engineering, 9/1/09 -5/31/12,
"A Techno-economic Plant- and Grid-Level Assessment of Flexible CO2 Capture" - Ph.D. Committee Member (completed).
Anderson, Austin David, Mechanical Engineering -8/31/12,
"Exploration of Statistical Approaches to Estimating the Risks and Costs of Fire in the United States" - M.S. Member (completed).
Chen Zhu, ORIE, 9/1/11 -8/31/12,
"Equipment Data Analysis Study: Failure time data modeling and analysis" - M.S. Member (completed).
Qingchao Meng, Statistics and Scientific Computation, 9/1/11 -8/31/12,
"Trading strategies back test on crude oil futures contracts with time series modeling" - M.S. Member (completed).
Babafemi Ogunyomi, Petroleum and Geosystems Engineering, 9/1/12-present - Ph.D. Committee Member (in progress).
Chioke Harris, Mechanical Engineering, 9/1/12-present - Ph.D. Committee Member (in progress).
GAO, ZHUFENG, Operations Research and Industrial Engineering, 9/1/10-present - Ph.D. Committee Member (in progress).
He, Ying, IROM - Ph.D. Committee Member (in progress).
Ziyu Liang, Operations Research and Industrial Engineering, 9/1/10-present - Ph.D. Committee Member (in progress).

STUDENT ORGANIZATION ADVISOR***ADDITIONAL TEACHING ACTIVITIES**

Chair, Management Science and Engineering Certificate Program, Fall 2011 - Spring 2012.

Part 2: Administrative Positions/Committees

ADMINISTRATIVE COMMITTEES

Graduate Admissions Advisor, Graduate Student Recruiting Committee, Mechanical Engineering (ORIE), 9/1/11 - 8/31/12.
Member, Undergraduate Curriculum Advancement Committee, Mechanical Engineering (OR), 6/1/12-8/31/12.

UNIVERSITY COMMITTEES**SCHOOL COMMITTEES****DEPARTMENT COMMITTEES**

Graduate Studies Committee, ORIE, 9/1/11-8/31/12.
Graduate Studies Committee, PGE, 9/1/11-8/31/11.
Graduate Studies Committee, Division of Statistics + Scientific Computation, 9/1/11-8/31/12.
Graduate Studies Committee, EER, 9/1/11-8/31/12.
Member, GSRC, ME, 9/1/11-8/31/12.

OUTSIDE COMMITTEES

Chairman, DAS Wikipedia Page Redesign, Decision Analysis Society, 9/1/11-12/31/11.
Member, Knowledge Sharing, Society of Decision Professionals, 9/1/11-7/31/12.
Member, Board of Directors, Society of Decision Professionals, 9/1/11-7/31/12.

CONFERENCES CHAIRED/ORGANIZED**JOURNAL EDITORSHIPS & EDITORIAL BOARDS**

Associate Editor, *Decision Analysis*, INFORMS, 9/1/11-8/31/12.
Associate Technical Editor, *SPE Economics & Management*, Society of Petroleum Engineers, 9/1/11-8/31/12.
Member - Honorary Editorial Advisory Board, *Decision Analysis*, INFORMS, 9/1/11-8/31/12.
Member - Honorary Editorial Advisory Board, *EURO Journal of Decision Processes*, Association of European Operational Research Societies, 1/1/12-8/31/12.
Area Editor, *Encyclopedia of Operations Research and Management Science*, Wiley, 9/1/11-8/31/12.

Part 3: Contributions to Technology

REFEREED ARCHIVAL JOURNAL

Robin L. Keller, Ali Abbas, J. Eric Bickel, et al., "From the Editors: Probability Scoring Rules, Ambiguity, Multiatribute Terrorist Utility, and Sensitivity Analysis", *Decision Analysis*, Vol. 8, No. 4, 2011, pp. 251-255.
Luis V. Montiel and J. Eric Bickel, "Generating a Random Collection of Discrete Joint Probability Distributions Subject to Partial Information", *Methodology And Computing In Applied Probability*, 2012, (to appear).
J. Eric Bickel, Eric Floehr, and Seong-Dae Kim, "Comparing NWS POP Forecasts to Third-Party Providers", *Monthly Weather Review*, Vol. 139, No. 11, 2011, pp. 3304-3321.

REFEREED CONFERENCE, SYMPOSIA AND WORKSHOPS PROCEEDINGS**OTHER MAJOR PUBLICATIONS****NON-REFEREED CONFERENCE, SYMPOSIA AND WORKSHOPS PROCEEDINGS**

J. Eric Bickel, "Discretization, Simulation, and the Value of Information," *SPE Annual Technical Conference And Exhibition*, Denver, Colorado, published by SPE, November 2, 2011, pp SPE 145690.
Gong, X., D. A. McVay, J. E. Bickel, and L. Montiel, "Integrated Reservoir and Decision Modeling To Optimize Northern Barnett Shale Development Strategies," *Canadian Unconventional Resources & International Petroleum Conference*, Calgary, Alberta, Canada, published by SPE, November 15-17, 2011, pp CSUG/SPE 149459.

BOOK, BOOK CHAPTERS, EDITOR(S) OF BOOKS

Bickel, J. Eric, James E. Smith, and Jennifer L. Meyer, "Modeling Dependence among Geologic Risks in Sequential Exploration Decisions," *Decision Analysis In E&P*, 2011, published by Society of Petroleum Engineers.
Bratvold, Reidar, J. Eric Bickel, and Hans Petter Lohne, "Value of Information in the Oil and Gas Industry: Past, Present, and Future," *Decision Analysis In E&P*, 2011, published by Society of Petroleum Engineers.
Bickel, J. Eric, Richard L. Gibson, Duane A. McVay, Stephen Pickering, and John Waggoner, "Quantifying 3D Land Seismic Reliability and Value," *Decision Analysis In E&P*, 2011, published by Society of Petroleum Engineers.

PROPOSAL/MANUSCRIPT REVIEWER

"Manuscript", *Decision Analysis*: 9
"Manuscript", *Nature Climate Change*: 1
"Manuscript", *SPE Economics & Management*: 2
"Manuscript", *Psychological Methods*: 1
"Manuscript", *INFORMS Transactions on Education*: 1
"Manuscript", *Weather, Climate and Society*: 1

***TECHNICAL REPORTS**

J. Eric Bickel and Lee Lane, "Climate Engineering: Climate Engineering R&D," Copenhagen, Denmark, 1-32 pages, May 8, 2012, (This paper was a challenge paper on climate engineering that was part of the Copenhagen Consensus 2012 project. The paper will be reviewed by two non-anonymous referees and an expert panel. The expert panel is: • Finn Kydland, University of California, Santa Barbara (Nobel Laureate) • Robert Mundell, Columbia University (Nobel Laureate) • Thomas Schelling, University of Maryland (Nobel Laureate) • Vernon Smith, Chapman University (Nobel Laureate) • Nancy Stokey, University of Chicago).

ORAL PRESENTATIONS

J. Eric Bickel, "Discretization, Simulation, and Swanson's (In)accurate Mean," Houston, Texas, September 14, (Society of Decision Professionals Webinar).
 Bickel, J. Eric, "Discretization, Simulation, and the Value of Information," Denver, CO, October 31, 2011, (SPE ATCE).
 Zan, Kun and J. Eric Bickel, "Ranking or Selection?," Charlotte, North Carolina, November 11, 2011, (INFORMS Annual Conference, Decision Analysis Track).
 Montiel, Luis and J. Eric Bickel, "Simulating Discrete Joint Probability Distributions Subject to Partial Information," Charlotte, North Carolina, November 12, 2011, (INFORMS Annual Conference, Decision Analysis Track).
 Bickel, J. Eric and Luis Montiel, "Making Decisions with Partial Information: Eagle Airlines Example," Charlotte, North Carolina, November 12, 2011, (INFORMS Annual Conference, Decision Analysis Track).
 Bickel, J. Eric, "Climate Change and Climate Engineering," Rice University, Jones Graduate School of Business, March 28, 2012.

PATENTS ISSUED

OTHER PROFESSIONAL HIGHLIGHTS

Interviewed for CBC Radio One (Canada) radio program "Demon Coal" hosted by Max Allen., 2011.
 My geoenvironmental research was featured in Slate.
http://www.slate.com/articles/technology/copenhagen_consensus_2012/2012/05/copenhagen_consensus_technology_geoenvironmental_and_low_carbon_taxes_are_favored_solutions_for_2001.

Part 4: Research Activities/Grants & Contracts

DESCRIPTION OF CURRENT RESEARCH

My research is focused in two broad areas: methodological improvements in decision making and applications to energy and climate policy. In terms of methodological improvements, I am focused on the modeling of probabilistic dependence, value of information, scoring rules, discretization, and stochastic price models. In terms of applications to energy and climate policy, I am focused on the use of climate engineering as a response to climate change, valuing monitoring programs in carbon capture and storage, and helping the oil and gas industry better prevent and respond to blowouts.

NEW AND CONTINUING PROJECTS FUNDED

Applied Materials, "PROCEED", \$10,000, New, (30-2110-49), (9/1/10-8/31/15).
 DOE NETL, "Developing comprehensive risk assessment frameworks for Geological storage of CO₂", \$1,996,132, Continuing, (26-0836-60), (10/01/2009-07/13/2014).
 National Science Foundation, "Career: Accurate and Efficient Modeling of Probabilistic Dependence and its Impact on Decision Making Under Uncertainty", \$400,000, Continuing, (200902195 - 001), (03/01/2010-02/28/2015).
 Pioneer Natural Resources, "NDA", \$0.00, Continuing, (201001903 - 001), (04/27/2010-04/26/2012).
 Ford Motor Company, "PROCEED", \$10,000, New, (30-2110-36), (9/1/10-8/31/15).
 Department of Energy, RPSEA, "Optimizing Development Strategies to Increase Reserves in Unconventional Gas Reservoirs", with D. McVay, \$394,606, New, (26-3206-77), (12/1/2008-12/31/2011).
 Sandia National Labs, "Support for Risk-Informed Security Analysis Methodology with Applications to Small Modular Reactors", with Schneider, Erich and David Morton, \$110,000, New, (26-3969-95), (7/17/12-5/31/13).
 BP America Production Company, "Quantifying the Benefit of CCS Monitoring and Verification Technologies", \$44,560, New, (201200615-001), (6/1/12-8/31/13).

Part 5: Continuing Education

SHORT COURSES (ORGANIZED, TAUGHT, ATTENDED)

"Decision Leadership", Stanford / UT Strategic Decision And Risk Management Certificate, Houston, Texas, United States, December 7-10.
 "Decision Quality", Stanford / UT Strategic Decision And Risk Management Certificate, Houston, Texas, USA, December 5-7, 2011.

WORKSHOPS (ORGANIZED, PARTICIPATED, ATTENDED)

CONFERENCES ATTENDED

"INFORMS Annual Conference", INFORMS, Charlotte, NC, USA, Nov 13-16, 2011.
 "SPE Annual Technical Conference and Exhibition", SPE, Denver, CO, USA, October 31, 2011.

Part 6: Engineering Recognition

HONORS AND AWARDS

Outstanding Technical Editor, SPE, 2011.

*PROFESSIONAL MEMBERSHIPS

Member, American Meteorological Society, 2005-Present.
 Fellow, Society of Decision Professionals, 2010-Present.
 Member, Decision Analysis Society, 1994-Present.
 Member, Energy, Natural Resources, and the Environment Section, 2005-Present.
 Member, Institute for Operations Research and the Management Sciences, 1994-Present.
 Member, Institute of Industrial Engineers, 2004-Present.
 Member, Mensa, 1993-Present.
 Member, Society of Petroleum Engineers, 2004-Present.
 Member, Society of Exploration Geophysicists, 2005-Present.
 Member, INFORMS Sports Section, 2005-Present.
 Member, Society for American Baseball Research, 1995-Present.

Member, American Society of Mechanical Engineers, 2008-Present.

Part 7: Community Activities: (Professional Service Only)

COMMUNITY ACTIVITIES

Part 8: Professional Experience

PROFESSIONAL REGISTRATION

New Mexico, Engineer in Training.

CONSULTING

*** ADDITIONAL FACULTY COMMENTS**

Faculty Annual Report for Year Ending August 31, 2013

Bickel, J. Eric
Assistant Professor

Department of Mechanical Engineering

Part 1: Teaching Activities

COURSES TAUGHT

PH.D. SUPERVISION COMPLETED

Kun Zan, Operations Research and Industrial Engineering, 9/1/2008 -8/31/2013,
"Value of Information and Portfolio Decision Analysis".

M.S. SUPERVISION COMPLETED

PH.D. SUPERVISION IN PROGRESS

Chris Hadlock, Operations Research and Industrial Engineering, 6/1/13-present,
"System Reliability with Partial Information".

Robert Hammond, Operations Research and Industrial Engineering, 9/1/11-present,
"The Accuracy of Discretizations in Decision Analysis".

Tao Huang, Operations Research and Industrial Engineering, 9/1/12-present,
"Optimal Assessment Protocols in Decision Analysis".

Kun Zan, Operations Research and Industrial Engineering, 9/1/2008 -8/31/2013,
"Value of Information and Portfolio Decision Analysis".

M.S. SUPERVISION IN PROGRESS

Luis Mendoza-Nativida, Operations Research and Industrial Engineering, 6/1/13 - present,
"Value of Information in Oil & Gas Plays".

OTHER STUDENT RESEARCH SUPERVISION

Gerard Santiago, Undergraduate research experience, 1/15/13-5/15/13.

Vivienne Zhang, Undergraduate research project for ME's Management Science & Engineering
certificate., 1/15/13-5/15/13.

Ziyu Liang, Operations Research and Industrial Engineering, 9/1/11 -12/15/12,
"Variational Problems for Semi-Martingale Reflected Brownian Motion in the Octant" - Ph.D.
Committee Member (completed).

Babafemi Ogunyomi, Petroleum and Geosystems Engineering, 9/1/12-present - Ph.D. Committee
Member (in progress).

Changgui Dong, LBJ School of Public Affairs, 10/1/2012-present,
"Technology Adoption in Residential Solar" - Ph.D. Committee Member (in progress).

Chioke Harris, Mechanical Engineering, 9/1/12-present - Ph.D. Committee Member (in progress).

Eugenio Iturriaga, Civil Engineering, 3/1/13-present - Ph.D. Committee Member (in progress).

Fang Lu, Operations Research and Industrial Engineering, 10/1/2012-present - Ph.D. Committee
Member (in progress).

GAO, ZHUFENG, Operations Research and Industrial Engineering, 9/1/10-present - Ph.D. Committee Member (in progress).

Kanokwan Kullawan, Petroleum Engineering, University of Stavanger, 10/1/2012-present, "Real-time Steering Decision during Drilling" - Ph.D. Committee Member (in progress).

Ying He, IROM, 4/11/12-present,

"Utility Functions Representing Preference over Interdependent Attributes" - Ph.D. Committee Member (in progress).

STUDENT ORGANIZATION ADVISOR

***ADDITIONAL TEACHING ACTIVITIES**

Chair, Management Science and Engineering Certificate Program, Fall 2011 - Spring 2012.

Advise ORIE A PRIORI project team., Spring 2013.

Part 2: Administrative Positions/Committees

ADMINISTRATIVE COMMITTEES

Graduate Admissions Advisor, Graduate Student Recruiting Committee, Mechanical Engineering (ORIE), 9/1/12 - 8/31/13.

Member, Undergraduate Curriculum Advancement Committee, Mechanical Engineering, 1/1/12-8/31/13.

UNIVERSITY COMMITTEES

SCHOOL COMMITTEES

DEPARTMENT COMMITTEES

Graduate Studies Committee, ORIE, 9/1/11-8/31/12.

Graduate Studies Committee, PGE, 9/1/11-8/31/11.

Graduate Studies Committee, Division of Statistics + Scientific Computation, 9/1/11-8/31/12.

Graduate Studies Committee, EER, 9/1/11-8/31/12.

Member, GSRC, ME, 9/1/11-8/31/12.

OUTSIDE COMMITTEES

Vice President, Decision Analysis Society, 10/1/12-9/30/14.

Member, Subdivisions Council, INFORMS, 10/1/12-9/30/14.

Member, Sections/Societies Committee, INFORMS, 10/1/12-9/30/14.

Chairman, Nominating Committee, Decision Analysis Society, 10/1/12-9/30/14.

CONFERENCES CHAIRED/ORGANIZED

Chair, Decision Analysis Affinity Group Annual Conference, Austin, Texas, April 11-12, 2013.

Session Chair, Decision Analysis Track (Scoring Rules and Probability Assessment), Phoenix, Arizona, October 14, 2012.

Session Chair, Decision Analysis Track (Aggregation of Probabilistic Judgments), Phoenix, Arizona, October 15, 2012.

JOURNAL EDITORSHIPS & EDITORIAL BOARDS

Associate Editor, *Decision Analysis*, INFORMS, 9/1/11-8/31/12.

Associate Technical Editor, *SPE Economics & Management*, Society of Petroleum Engineers, 9/1/11-8/31/12.

Member - Honorary Editorial Advisory Board, *Decision Analysis*, INFORMS, 9/1/11-8/31/12.

Member - Honorary Editorial Advisory Board, *EURO Journal of Decision Processes*, Association of European Operational Research Societies, 1/1/12-8/31/12.

Area Editor, *Encyclopedia of Operations Research and Management Science*, Wiley, 9/1/11-8/31/12.

Part 3: Contributions to Technology

REFEREED ARCHIVAL JOURNAL

Nobu Hirotsu and J. Eric Bickel, "Optimal batting orders in run-limit-rule baseball: A Markov-chain approach", *IMA Journal Of Management Mathematics*, 2013, (under review).

J. Eric Bickel and Seong Dae Kim, "Reexamining the efficiency of the Major League Baseball over-under betting market.", *Journal Of Sports Economics*, 2013, (under review).

Luis V. Montiel and J. Eric Bickel, "A Generalized Sampling Approach for Multi-linear Utility Functions Given Partial Preference Information", *Decision Analysis*, 2013, (under review).

Robert K. Hammond and J. Eric Bickel, "Discretization Method for Continuous Probability Distributions", *Wiley Encyclopedia Of Operations Research And Management Science*, 2013, (under review).

Luis V. Montiel and J. Eric Bickel, "Accuracy of Joint Distribution Approximations", 2013, (in final stages).

Nobu Hirotsu and J. Eric Bickel, "A method for identifying the situations to attempt a sacrifice bunt using a Markov-chain model", 2013, (in final stages).

Seong Dae Kim, Robert K. Hammond, and J. Eric Bickel, "On the Accuracy of PERT Discretizations", *IEEE Transactions On Engineering Management*, 2013, (under review).

K. Kullawan, R. Bratvold, J. E. Bickel, "Integration of Bayesian Decision-Making Methods into Geosteering Practices", *SPE Drilling & Completion*, 2013, (under review).

Philip Thomas, Reidar Bratvold, and J. Eric Bickel, "The Risk of Using Risk Matrices", *SPE Economics & Management*, 2013, (under review).

Luis V. Montiel and J. Eric Bickel, "Decision Making with Partial Probabilistic or Preference Information", 2013, (in final stages).

Robert H. Hammond and J. Eric Bickel, "Reexamining Discrete Approximations to Continuous Distributions", *Decision Analysis*, Vol. 10, No. 1, 2013, pp. 6-25.

Robert K. Hammond and J. Eric Bickel, "On the Decision Relevance of Stochastic Oil Price Models: A Case Study", *The Engineering Economist*, 2013, (to appear).

Luis V. Montiel and J. Eric Bickel, "A Simulation-Based Approach to Decision Making with Partial Information", *Decision Analysis*, Vol. 9, No. 4, 2012, pp. 329-347.

J. Eric Bickel, "Discretization, Simulation, and the Value of Information", *SPE Economics & Management*, Vol. 4, No. 4, 2012, pp. 198-203.

Luis V. Montiel and J. Eric Bickel, "Approximating Joint Probability Distributions Given Partial Information", *Decision Analysis*, Vol. 10, No. 1, 2013, pp. 26-41.

Robert K. Hammond and J. Eric Bickel, "Approximating Continuous Probability Distributions Using the 10th, 50th, and 90th Percentiles", *The Engineering Economist*, 2013, (to appear).

Kun Zan and J. Eric Bickel, "Components of Portfolio Value of Information", *Decision Analysis*, Vol. 10, No. 2, pp. 171-185.

Robin L. Keller, Ali Abbas, J. Eric Bickel, et al. , "From the Editors Brainstorming, Multiplicative Utilities, Partial Information on Probabilities or Outcomes, and Regulatory Focus", *Decision Analysis*, Vol. 9, No. 4, 2012, pp. 297-302.

Carlos Puerta-Ortega, J. Eric Bickel, and Susan Hovorka, "Assessing the value of permeability data in a carbon capture and storage project", *International Journal Of Greenhouse Gas Control*, Vol. 17, 2013, pp. 523-533.

J. Eric Bickel, "Climate engineering and climate tipping-point scenarios", *Environment, Systems & Decisions*, Vol. 33, No. 1, 2013, pp. 152-167.

J. Eric Bickel and Shubham Agrawal, "Reconsidering the Economics of Aerosol Geoengineering", *Climatic Change*, Vol. 119, No. 3, 2013, pp. 993-1006.

REFEREED CONFERENCE, SYMPOSIA AND WORKSHOPS PROCEEDINGS

B. Canion, E. Bickel, C. Hadlock, D. Morton, and E. Schneider, "Game Theoretic Analysis of Physical Protection System Design," *GLOBAL 2013*, Salt Lake City, UT, *Proceedings Of GLOBAL 2013*, September 29 - October 3, 2013.

OTHER MAJOR PUBLICATIONS

NON-REFEREED CONFERENCE, SYMPOSIA AND WORKSHOPS PROCEEDINGS

Philip Thomas, Reidar Bratvold, and J. Eric Bickel, "The Risk of Using Risk Matrices," *SPE Annual Technical Conference And Exhibition*, New Orleans, Louisiana, published by SPE, 2013, Vol. 166269-MS.

K. Kullawan, R. Bratvold, J. E. Bickel, "Integration of Bayesian Decision-Making Into Geosteering Practices," *SPE Middle East Intelligent Energy Conference And Exhibition*, Dubai, UAE, published by SPE, 2013, Vol. 167433-MS.

BOOK, BOOK CHAPTERS, EDITOR(S) OF BOOKS

Bickel, J. Eric and Lee Lane, "Climate Engineering R&D", *Global Problems, Smart Solutions*, edited by Bjørn Lomborg, 752 pages, 2013, published by Cambridge University Press.

J. Eric Bickel and Lee Lane, "CLIMATE ENGINEERING R&D", *How To Spend \$75 Billion To Make The World A Better Place*, edited by Bjørn Lomborg, Washington, DC, 2013, published by Copenhagen Consensus Center.

PROPOSAL/MANUSCRIPT REVIEWER

"Ultra-deepwater Proposals", RPESEA: 1

"Manuscript", *Decision Analysis*: 6

"Manuscript", *Management Science*: 1

"Manuscript", *Environment Systems and Decisions*: 1

"Manuscript", *Economics Letters*: 1

"Manuscript", *Environment, Development and Sustainability*: 1

"Manuscript", *Environment, Systems & Decisions*: 1

"Manuscript", *Wiley Encyclopedia of Operations Research and Management Science*: 1

"Manuscript", *EURO Journal on Decision Processes*: 1

"Manuscript", *Operations Research*: 1

"Manuscript", *Risk Analysis*: 1

***TECHNICAL REPORTS**

Lane, Lee and J. Eric Bickel, "Solar Radiation Management: An Evolving Climate Policy Option," Washington, DC, 2013.

Cipiti, B. B., S. E. Jordan, G. D. Wyss, T. G. Lewis III, F. A. Duran, C. Hadlock*, B. Canion*, E. Schneider, E. Bickel, D. Morton, "Risk-Informed Analysis and Game Theory Applied to Small Modular Reactor Security," Albuquerque, NM, 2012.

J. Eric Bickel, "QUANTIFYING THE BENEFIT OF CCS MONITORING AND VERIFICATION TECHNOLOGIES," August 2013.

ORAL PRESENTATIONS

J. Eric Bickel, "Academic Perspectives," DAAG Annual Conference, April 11, 2013.

Lane, Lee and J. Eric Bickel, "Solar Radiation Management: An Evolving Climate-Policy Option," American Enterprise Institute for Public Policy Research, May 29, 2013, (Nobel Laureate Prof. Thomas Schelling offered remarks on our talk/paper.).

Bickel, J. Eric, "Risk Management with Partial Information," Committee of Chief Risk Officers, Risk Networking Summit, September 27, 2012.

Bickel, J. Eric, "Simulation, Decision Trees, and Discretization," Chevron Oil Corporation, Decision Analysis Day, September 24, 2012.

J. Eric Bickel, "Deciding to Geoengineer the Planet: A Decision Analysis Case Study," Webinar, June 25, 2013.

I. Duncan, H. Wang, and J. E. Bickel, "Pragmatic and Modeling Approaches to Understanding Risks of Leakage in Shale Gas Wells," Society of Risk Analysis Annual Conference., December 2012.

I. Duncan, H. Wang, and J. Eric Bickel, "Predicting CO2 Pipeline Risk from Natural Gas Accident Data," DOE National Energy Technology Laboratory CO2 Sequestration Review Meeting, September 2012.

J. Eric Bickel, "Climate Change and Climate Engineering," DAAG Annual Conference, April 11, 2013.

PATENTS ISSUED

OTHER PROFESSIONAL HIGHLIGHTS

Featured by INFORMS in their podcast series "The Science of Better." List, Barry. June 21, 2013. "Analytics at the Plate." <http://www.scienceofbetter.org/podcast/bickel2.html>, 2013.

Part 4: Research Activities/Grants & Contracts

DESCRIPTION OF CURRENT RESEARCH

My research is focused in two broad areas: methodological improvements in decision making and applications to energy and climate policy. In terms of methodological improvements, I am focused on the modeling of probabilistic dependence, value of information, scoring rules, discretization, and stochastic price models. In terms of applications to energy and climate policy, I am focused on the use of climate engineering as a response to climate change, valuing monitoring programs in carbon capture and storage, and helping the oil and gas industry better prevent and respond to blowouts.

NEW AND CONTINUING PROJECTS FUNDED

Sandia National Labs, "Support for Risk-Informed Security Analysis Methodology with Applications to Small Modular Reactors", with Schneider, Erich and David Morton, \$110,000, New, (26-3969-95), (7/17/12-5/31/13).

Drilling Info, "ORIE A PRIORI Project Class", \$10,000, New, (30-2111-3051), (1/15/13-8/31/14).
 Weatherford International, "CPARM Membership", \$50,000, New, (9/1/13-8/31/13).
 Department of Energy, "Towards an Emergent Model of Technology Adoption for Accelerating the Diffusion of Residential Solar PV", with V. Rai, \$492,096, New, (26-0837-4412), (6/1/13-8/31/16).
 BP America Production Company, "Project 20K: Quantifying System Reliability to Inform Concept Selection", \$186,917, New, (26-7703-05), (6/1/13-8/31/14).
 Applied Materials, "PROCEED", \$10,000, New, (30-2110-49), (9/1/10-8/31/15).
 Ford Motor Company, "PROCEED", \$10,000, New, (30-2110-36), (9/1/10-8/31/15).
 BP America Production Company, "Quantifying the Benefit of CCS Monitoring and Verification Technologies", \$44,560, New, (201200615-001), (6/1/12-8/31/13).
 DOE NETL, "Developing comprehensive risk assesment frameworks for Geological storage of CO2", with Ian Dunan, J. Nicot, C. Yang, \$1,996,132, Continuing, (26-0836-60), (10/01/2009-07/13/2014).
 Centre for Drilling and Wells for Improved Recovery (Norway), "Real-time Steering Decision During Drilling", \$69,325, New, (26-6301-95), (10/15/12-8/31/14).
 NSF, "CAREER: Accurate and Efficient Modeling of Probabilistic Dependence and its Impact on Decision Making Under Uncertainty", \$400,000, New, (19-7900-1095), (9/1/2010-2/28/2015).
 Kuwait Oil Company, "CPARM Annual Membership", \$100,000, New, (9/1/13-8/31/15).

Part 5: Continuing Education

SHORT COURSES (ORGANIZED, TAUGHT, ATTENDED)

WORKSHOPS (ORGANIZED, PARTICIPATED, ATTENDED)

CONFERENCES ATTENDED

"INFORMS Annual Conference", INFORMS, Phoenix, AZ, USA, Oct 14-17, 2012.
 "Decision Analysis Affinity Group (DAAG) Annual Conference", DAAG, Austin, TX, April 11-12, 2013.

Part 6: Engineering Recognition

HONORS AND AWARDS

***PROFESSIONAL MEMBERSHIPS**

Member, American Meteorological Society, 2005-Present.
 Fellow, Society of Decision Professionals, 2010-Present.
 Member, Decision Analysis Society, 1994-Present.
 Member, Energy, Natural Resources, and the Environment Section, 2005-Present.
 Member, Institute for Operations Research and the Management Sciences, 1994-Present.
 Member, Institute of Industrial Engineers, 2004-Present.
 Member, Mensa, 1993-Present.
 Member, Society of Petroleum Engineers, 2004-Present.
 Member, INFORMS Sports Section, 2005-Present.
 Member, Society for American Baseball Research, 1995-Present.
 Member, American Society of Mechanical Engineers, 2008-Present.

Part 7: Community Activities: (Professional Service Only)

COMMUNITY ACTIVITIES

Part 8: Professional Experience

PROFESSIONAL REGISTRATION

New Mexico, Engineer in Training.

CONSULTING

*** ADDITIONAL FACULTY COMMENTS**

BUDGET COUNCIL STATEMENT OF TEACHING

ERIC BICKEL

Overview and Principal Areas of Teaching

Dr. J. Eric Bickel is a member of the faculty in our Graduate Program in Operations Research & Industrial Engineering (ORIE) in the Mechanical Engineering Department (ME). He teaches core undergraduate courses in ME, and required and elective graduate courses in ORIE. Dr. Bickel believes that students at all levels of education—from high school students to undergraduate students to graduate students to professionals engaged in continuing education—should learn to think critically about making decisions in all aspects of their lives. This core belief drives Dr. Bickel's teaching activities. His students respond very well to Dr. Bickel's passion regarding the importance of learning decision making as a fundamental life skill.

Since joining our faculty in the 2008-2009 academic year, Dr. Bickel has taught one undergraduate course, ME 353 *Engineering Finance*, and two ORIE graduate courses, ORI 397 *Decision Analysis* and ORI 391Q.1 *Applied Probability*. Engineering Finance is a core undergraduate course in the ME curriculum. Decision Analysis is an elective course in ORIE in Dr. Bickel's primary area of research. Applied Probability is a required course for ORIE MS students, a topic on the ORIE PhD qualifying exam, and a topic on the ME interdisciplinary PhD qualifying exam. In Fall 2013, Dr. Bickel will teach a second ME core undergraduate course, ME 335 *Engineering Statistics*, due to the recent retirement of Prof. J. Wesley Barnes.

Evaluation Procedure

This statement is prepared by a member of the ME Budget Council, Dr. David Morton, Engineering Foundation Professor #1 and ORIE Coordinator. The statement is based on: (i) a review of student course-instructor surveys conducted at the end of each course; (ii) a review of Dr. Bickel's Teaching Portfolio, including course syllabi, homeworks, quizzes, case studies, and exams; (iii) a review of Dr. Bickel's promotion package including his Statement on Teaching and Statement on Advising, Counseling, and Other Student Services; (iv) five peer teaching evaluations from Spring 2011 through Spring 2013 in Decision Analysis and Engineering Finance; (v) a review of a draft of Dr. Bickel's NSF CAREER proposal, and (vi) joining Dr. Bickel's monthly research group meetings on several occasions. In Dr. Bickel's case, each peer teaching evaluation was carried out by Dr. Morton, and the timing of the evaluations was agreed upon ahead of time. There were no surprise visits by an evaluator.

Summary of Teaching Evaluations

The Overall Instructor Rating is used as the prime indicator from the Course Instructor Survey. (The Overall Course Rating is also a prime indicator, but in Dr. Bickel's case the course rating consistently lagged the instructor rating by 0.2 points, which is consistent with Department, School, and University lags.) Dr. Bickel taught the undergraduate core course Engineering Finance six times and received a rating of 3.65/5.0. This value is below ME, Cockrell School, and University averages of 4.0-4.2 over this timeframe. That said, Engineering Finance is a

challenging course to teach, and prior to Dr. Bickel joining our faculty, the instructor rating was substantially lower. Moreover, the two highest scores Dr. Bickel has received in ME 353 are in his two most recent offerings, including a Spring 2013 rating of 4.5.

Dr. Bickel's average instructor rating in Applied Probability is 4.3 and in Decision Analysis is 4.4. These are somewhat above Department, School, and University averages. Moreover, these are excellent ratings considering that these graduate courses have strong enrollments. The required graduate course Applied Probability averages about 35 students, and the elective course Decision Analysis averages nearly 30 students.

One section of the syllabus for each of Dr. Bickel's class includes a section called "Learning Environment." In that section, he encourages students to ask questions both in class, and outside of class, and to participate in classroom discussions. The section concludes with, "I want you to do well and am concerned about your performance. This material is important. Really!" The fact that the vast majority of students respond positively to Dr. Bickel's passion is clear from student evaluations.

Decision Analysis, Assessing Probabilities, and Engineering Practice

Decision Analysis is an elective course in the ORIE Program, and is a new course developed by Dr. Bickel. It is attended by students from programs in ORIE, Civil, Architectural & Environmental Engineering, Energy & Earth Resources, and Petroleum & Geosystems Engineering, among others. A key part of the field of decision analysis concerns eliciting probabilities from experts on the likelihood of competing hypotheses, a central notion in science and engineering. Dr. Bickel teaches methods for assessing such probabilities in Decision Analysis, and he does so early on in the course for reasons now explained. Exams in Decision Analysis involve multiple-choice questions, with responses a , b , c , and d . An answer to a question involves the student assigning probabilities p_a , p_b , p_c , and p_d , that each response is correct. These probabilities should be nonnegative, and sum to one. Exam grading is done using a logarithmic scoring rule, appropriately scaled and shifted. Assigning probability zero to a correct response yields a score of negative infinity for that specific question, and it is impossible to recover from such a score. This type of exam forces students to internalize the idea of a log-based utility function, to understand more deeply the notion of assigning probabilities to competing hypotheses, and to realize that this scoring rule yields a more informative test score than does the binary outcome of students simply selecting, and sometimes guessing, what they believe to be the correct response.

Exam scoring in Decision Analysis is representative of Dr. Bickel's teaching more broadly: He practices what he teaches and encourages (well, in the case of the Decision Analysis exams, requires) students to do so, too. To be sure, a few students complain in their instructor surveys saying, e.g., "Probabilistic grading is confusing." That said, the vast majority of students embrace this idea, in part because Dr. Bickel motivates it so well.

With the same motivation, Dr. Bickel has redesigned our undergraduate Engineering Finance course, to include a focus on decision making under uncertainty. Student survey responses in this course include, "I think this is one of the most important classes that engineers can take." And, "Dr. Bickel is one of the best professors I've had. He was very good about teaching us both what

he had to (the syllabus) and what he knew we should know for life (mortgages, time shares, solar panels, etc.).”

In Applied Probability and Decision Analysis, Dr. Bickel awards extra credit with each homework assignment if a student describes a newspaper or magazine article that has a discussion that would benefit from the analytical tools taught in the course. In Applied Probability, students read Nassim Taleb’s popular book, *Fooled by Randomness*, and write a report. Dr. Bickel makes demonstrating knowledge and applicability of the course material beyond the course fun and interesting.

Beyond Organized Teaching

As part of Dr. Bickel’s NSF CAREER grant, he proposed to create a certificate program in Management Science and Engineering for ME undergraduates. Three high-performing students have participated in this certificate program so far, which includes them taking at least one graduate-level course in ORIE and performing a research project with an ORIE faculty adviser. Dr. Bickel has used ME’s curriculum reform program called PROCEED to help fund his certificate program, offering fellowships to top applicants.

Dr. Bickel has worked with the Decision Education Foundation, which came out of Stanford University, to help teach high school teachers, and mentors, of at-risk youth how to teach their students decision-making skills. Dr. Bickel further worked with the University’s Center for Lifelong Engineering Education (CLEE) and Stanford’s Center for Professional Development to offer two courses in Stanford’s Strategic Decision and Risk Management Program. Dr. Bickel offered courses in *Decision Quality* and *Decision Leadership* to executives in Houston in December 2011, and he has plans to do so again in January 2014.

In Spring 2012, ORIE launched a new graduate course entitled *Applied Projects in ORIE (A PRIORI)*, and it has been taught twice so far. In Spring 2013, Dr. Bickel recruited DrillingInfo as an industrial sponsor of a student project, and he advised an interdisciplinary team of students from Petroleum & Geosystems Engineering and ORIE to work on that project. From speaking with Dr. Bickel, reviewing feedback from the industry sponsor, and speaking with the student team, the project was a success for all involved.

ORIE holds weekly graduate seminars, and the faculty rotate responsibility of organizing the seminar and inviting external speakers. When hosting the seminar, Dr. Bickel has invited a number of outstanding speakers including Shane Henderson (Cornell), Ralph Keeney (Duke), and Bonnie Ray (IBM).

Dr. Bickel has graduated two PhD students in ORIE, and graduated one from Texas A&M, prior to joining our faculty. He has two more PhD students in progress. Dr. Bickel has further graduated 13 MS students in his time at the University. In addition to individual weekly mentoring meetings with Dr. Bickel, his students benefit from a monthly research group meeting. I have joined that meeting on several occasions, and students have presented the current state of their research. On each occasion, faculty from the McCombs School of Business have also joined the meeting. And, often Dr. Bickel invites the visiting speaker from the ORIE Seminar Series to join, too, rather than simply meeting with Dr. Bickel individually.

Balance between Undergraduate and Graduate Teaching

Dr. Bickel has offered eight graduate courses and six undergraduate courses. This balance is more towards undergraduate offerings than most of the faculty in the Graduate Program in ORIE, where the bulk of our teaching responsibilities are at the graduate level. That said, Dr. Bickel has taught Decision Analysis each year while he has been in rank, and this helps feed his research program with MS and PhD students.

Willingness to Teach Courses with Strong Student Demand

Dr. Bickel has taught Engineering Finance six times in rank, and this course has typical enrollments of about 110 students. As indicated above, Dr. Bickel also teaches a required MS course in Applied Probability that averages about 35 students, many from outside ORIE, and his elective graduate course in Decision Analysis is popular (about 30 students), again with many students attending from outside the ORIE program. Dr. Bickel volunteered to teach Engineering Statistics in Fall 2013, upon the retirement of Prof. J. Wesley Barnes. Like Engineering Finance, this is a core course in the ME curriculum with typical enrollments of about 110 students.

Summary

Dr. Bickel is an excellent teacher. His strong teaching evaluations at the graduate level, and his good teaching evaluations in a challenging core undergraduate course both attest to this. Moreover, Dr. Bickel has significant teaching activity outside of organized courses, particularly for an assistant professor. The fact that his graduate classes are in demand, not only from students in ORIE but also from students across Engineering and elsewhere in the University, speaks to his reputation as an excellent teacher. The Graduate Program in Operations Research & Industrial Engineering, the Department of Mechanical Engineering, and the Cockrell School of Engineering are fortunate to have such a passionate and outstanding teacher and mentor in Dr. Bickel.



Dr. David P. Morton
Professor
Engineering Foundation Endowed Professor #1

September 3, 2013

Promotion Review

J. E. Bickel
Mechanical Engineering (ORIE)**JAMES ERIC BICKEL****STATEMENT ON TEACHING**

My educational goal is to transform primary, secondary, undergraduate, and graduate education through the incorporation of decision-making skills into all aspects of the curricula. Decision making is a fundamental life skill, yet we do not train students to make decisions. Even in engineering, which is a decision-making discipline (we call it “design”), I believe we could spend more time teaching students how to make critical decisions, particularly decisions involving uncertainty. Since 2008, to accomplish these goals, I have:

- Created a new Operations Research/Industrial Engineering (ORIE) graduate course in decision analysis.
- Redesigned the core Mechanical Engineering (ME) undergraduate Engineering Finance course to emphasize decision making.
- Developed a certificate program in the ME Department, as part of my National Science Foundation (NSF) CAREER grant (SES-0954371), in “Management Science & Engineering.”
- Worked with the Decision Education Foundation to bring decision-making skills to high-school teachers and at-risk youth.
- Developed a professional certificate program in Decision Quality and Decision Leadership between The University of Texas at Austin (UT) and Stanford University.
- Supervised 13 masters students (not including 12 MS students at Texas A&M)
- Supervised 4 doctoral students (not including my PhD student from Texas A&M)

Each of these is discussed below.

GRADUATE EDUCATION AT THE UNIVERSITY OF TEXAS

My primary educational focus at The University of Texas (UT) has been graduate education. I have taught two graduate courses (including a new course offering) and supervised numerous masters and doctoral students.

DECISION ANALYSIS

In 2008, I developed a new graduate course entitled “Introduction to Decision Analysis” (ORI 390R.17). This class is the only formal course in decision analysis offered at UT. I teach the axioms of expected utility theory, Bayesian analysis, influence diagrams, decision trees, risk preference, value of information, probability assessment, decision modeling, sensitivity analysis, and life-and-death decision making. Although, I currently use a manuscript written by my advisor, Prof. Ron Howard, I hope to write my own textbook in the future.

In order to expose the students to decision-analysis practice, I developed four new case studies. The first is a Bayesian analysis of a painting that is believed to be by Leonardo da Vinci. The second is an expansion of the Harvard Business School (HBS) case “Freemark Abbey,” which I use also in my executive education. The third is an expansion of the HBS bidding case “The SS Kuniang.” Finally, the fourth is an original case concerning a prostate-cancer treatment decision.

Given my interdisciplinary position and interests, my course attracts students from different fields of study. These include ORIE, Petroleum and Geosystems Engineering, the Energy and Earth Resources program, Civil and Environmental Engineering, the LBJ School of Public Affairs, the McCombs School of Business, Architecture, Psychology, Philosophy, and top undergraduate students in the Management Science & Engineering Certificate Program (described below). This diverse student body makes the course both a joy and a challenge to teach. The steady enrollment in this elective, which averages about 30 students per semester, rivals that of required ORIE courses.

Promotion Review

J. E. Bickel
Mechanical Engineering (ORIE)

My course evaluations are shown in Table 1. The total enrollment is 139 students. The weighted average course (weighted by enrollment) evaluation is a 4.2 and my instructor evaluation is a 4.4.

TABLE 1: DECISION ANALYSIS COURSE EVALUATIONS

| Term | Course | Enrollment | Evaluation (out of 5) | |
|-----------|---------------------|------------|-----------------------|--------|
| | | | Instructor | Course |
| Spring 09 | ORI 397 (DA, 18840) | 30 | 4.1 | 3.9 |
| Spring 10 | ORI 397 (DA, 19025) | 21 | 4.4 | 4.2 |
| Spring 11 | ORI 397 (DA, 19290) | 38 | 4.7 | 4.6 |
| Spring 12 | ORI 397 (DA, 19100) | 14 | 4.4 | 4.2 |
| Spring 13 | ORI 397 (DA, 19025) | 36 | 4.3 | 4.2 |
| | | 139 | 4.4 | 4.2 |

APPLIED PROBABILITY

I rotate teaching of the ORIE core-course Applied Probability (ORI 390R.1) and have taught it three times thus far. Although this was an existing course, I have endeavored to refine it by including a weekly probability assessment exercise concerning the score of the upcoming UT football game (scored with a strictly proper scoring rule) and included a class research report to summarize the book *Fooled by Randomness*.

My course evaluations are shown in Table 2. The total enrollment is 103 students. The weighted average course evaluation is a 4.1 and my instructor evaluation is a 4.3.

TABLE 2: APPLIED PROBABILITY (ORI 390R.1) COURSE EVALUATIONS

| Term | Course | Enrollment | Evaluation (out of 5) | |
|---------|-----------------|------------|-----------------------|--------|
| | | | Instructor | Course |
| Fall 09 | ORI 390R.1 (AP) | 32 | 4.2 | 4.0 |
| Fall 11 | ORI 390R.1 (AP) | 34 | 4.3 | 4.2 |
| Fall 12 | ORI 390R.1 (AP) | 37 | 4.3 | 4.1 |
| | | 103 | 4.3 | 4.1 |

RESEARCH SUPERVISION

Since 2008, I have supervised or am currently supervising 13 master's students and 4 doctoral students (25 master's students and 5 doctoral students over my academic career). My doctoral supervisions are given in Table 3, and my master's supervisions are given in Table 4. My first PhD student is now an assistant professor at The University of Alaska, Anchorage. My second PhD student (first at UT), Luis Montiel, is currently working as a Research Fellow in my research group. In addition to these supervisions, I have served or am serving on the committees of 10 master's students and 11 doctoral students. This includes two master's students and one PhD from The University of Stavanger (Norway).

TABLE 3: DOCTORAL SUPERVISIONS

| Student | Degree Program | Graduation Date | Dissertation Title | Current Position |
|----------------|----------------|-----------------|--|------------------------------------|
| Seong-Dae Kim | IE (TX A&M) | Spring 09 | Roads or Radar: The Tradeoff between Investments in Infrastructure and Forecasting in the Face of Hurricane Risk | Assistant Professor, U. of Alaska, |
| Luis Montiel | ORIE | Spring 12 | Approximations, Simulation, and Accuracy of Multivariate Discrete Probability Distributions in Decision Analysis | Research Fellow at UT |
| Kun Zan | ORIE | Summer 13 | Value of Information and Portfolio Decision Analysis | PhD Candidate |
| Robert Hammond | ORIE | Est: Spring 14 | The Accuracy of Discretizations in Decision Analysis | PhD Student |
| Tao Huang | ORIE | Est: Spring 15 | Optimal Assessment Protocols in Decision Analysis | PhD Student |

Promotion Review

J. E. Bickel
Mechanical Engineering (ORIE)

TABLE 4: MASTERS SUPERVISIONS

| Student | Degree Program | Graduation Date | Thesis Title |
|-------------------------------|----------------|-----------------|--|
| Vijo V. Theeyattuparampil | ORIE | Spring 09 | Analysis of Geoengineering Strategies |
| Paul R. Rebeiz | ORIE | Spring 09 | Capital Expansion Program under Price Capping Regulation |
| Angel Baca | EER | Fall 09 | Carbon Capture and Storage Potential Contribution to Mitigate Climate Change |
| Shubham Agrawal | ORIE | Fall 09 | The Risk of Ending a Solar Radiation Management Program Abruptly |
| Jennifer M. Mozano | ORIE | Spring 10 | Deciding among Models: A Decision-Theoretic View of Model Complexity |
| Arjun Ramakrishnan | ORIE | Spring 10 | Value of Information and the Accuracy of Discrete Approximations |
| Hong Chul Ki (Co-Supervision) | EER | Fall 10 | Vertical Integration and Diversification Perspectives on Entry Decisions: Analysis of a Refiner's Decision to Enter the Market |
| Robert Hammond | ORIE | Summer 11 | Decision Impact of Stochastic Price Models in the Petroleum Industry |
| Kyle Schelee | ORIE | Summer 11 | Wind Forecast Verification: A Study in the Accuracy of Wind Forecasts Made by The Weather Channel and AccuWeather |
| David Tyler Wymond | EER | Spring 11 | The U.S. Small Hydropower Industry: Opportunities for Development and Barriers to Success |
| Shbham Agrawal | EER | Summer 11 | Decision Analysis and Risk Management: Application of Climate Change and Risk Detection |
| Carlos Puerta Ortega | EER | Spring 12 | A Value of Information Analysis of Permeability Data for Storage Capacity in a Carbon, Capture and Storage Project |
| Dohyun Jo | EER | Spring 12 | A Decision Analysis of an Oil Company's Retail Strategy in the Face of Electric Vehicle Penetration Uncertainty |

UNDERGRADUATE EDUCATION AT THE UNIVERSITY OF TEXAS

I have integrated decision making into undergraduate education by revamping the Engineering Finance course and creating a new undergraduate certificate program.

ENGINEERING FINANCE

I rotate teaching the core Mechanical Engineering undergraduate course, Engineering Finance (ME 353), which is a standard engineering undergraduate course in engineering economics. I have completely revamped ME 353, which was offered as an “online” course before I arrived at UT (and still is when I do not teach it). I have reframed the course as an introduction to “financial decision making.” Specifically, I changed the textbook, developed four new case studies, included the use of Monte Carlo simulation (via @Risk software), and infused the lectures with examples from my consulting and engineering experience. The case studies include a decision whether to purchase a timeshare (which introduces the idea of economic equivalence), evaluation of a decision to enroll in a bi-weekly mortgage payment program (which introduces mortgages), analysis of a decision to install solar panels on an Austin home (which requires students to integrate engineering design and economics), and a class competition involving retirement savings (which introduces probabilistic modeling). The solar case study is particularly comprehensive and introduces students to the concept of an “externality” by placing a cost on carbon-dioxide emissions.

My course evaluations are shown in Table 5. Through the Fall of 2011, my overall instructor evaluation was 3.5 and the course evaluation was 3.3. Although these evaluations are lower than I strive

Promotion Review

J. E. Bickel
Mechanical Engineering (ORIE)

for, they are the highest that this course has received in at least the last decade. From 2002 up until I began teaching this course, the average instructor rating was 2.8 and the average course rating was 2.7. During the Spring of 2013, I revamped several aspects of the course, bringing new focus to the most important concepts and eliminating those not used in practice. This appears to have been very successful. My latest instructor and course evaluations were 4.5 and 4.2, respectively. Dating back to 2002, the top four instructor ratings are 4.5 (Bickel, Spring 2013), 3.8 (Bickel, Fall 2011), 3.9 (Bickel, Spring 2009), and 3.6 (Jensen, Spring 2002); the top four course ratings are 4.2 (Bickel, Spring 2013), 3.6 (Bickel, Spring 2009), 3.5 (Bickel, Fall 2011), and 3.5 (Jensen, Spring 2002).

TABLE 5: ENGINEERING FINANCE (ME 353) COURSE EVALUATIONS

| Term | Course | Enrollment | Evaluation (out of 5) | |
|-----------|----------------|------------|-----------------------|--------|
| | | | Instructor | Course |
| Spring 09 | ME 353 (18180) | 105 | 3.7 | 3.6 |
| Fall 09 | ME 353 (18640) | 121 | 3.3 | 3.2 |
| Fall 10 | ME 353 (18385) | 123 | 3.4 | 3.0 |
| Spring 11 | ME 353 (18560) | 99 | 3.2 | 3.1 |
| Fall 11 | ME 353 (18675) | 139 | 3.8 | 3.5 |
| Spring 13 | ME 353 (18675) | 96 | 4.5 | 4.2 |
| | | 683 | 3.6 | 3.4 |

MANAGEMENT SCIENCE AND ENGINEERING CERTIFICATE PROGRAM

As part of my NSF CAREER grant (SES-0954371), I established an undergraduate certificate program in operations research, which I entitled "Management Science & Engineering." This program was funded with a \$20,000 gift from the Department of Mechanical Engineering's PROCEED program, which received gifts from Ford Motor Company and Applied Materials. This money is used to provide nominal fellowships to students that are accepted into the program.

The goal of the program is to encourage outstanding mechanical engineering undergraduates to pursue graduate study. In order to obtain a certificate, students must complete three courses in ORIE, including at least one graduate course, and complete an original research project with an ORIE faculty member.

I have been the advisor for three students in this program: Michael Aragon, Michael Yoho, and Vivienne Zhang. I worked with them to design their program and supervised their research project.

EDUCATIONAL OUTREACH

As mentioned at the outset, I also have a desire to improve decision education at the primary and secondary levels. Towards this end, in June 2010, I co-led a week of courses for the Decision Education Foundation, which were targeted at high-school teachers and adult mentors of at-risk youth. These courses were offered on the campus of Stanford University.

PROFESSIONAL EDUCATIONAL

I am also eager to bring decision analysis tools and concepts to professionals. In June 2011, I secured an agreement between the Center for Lifelong Engineering Education (CLEE) at UT and the Stanford Center for Professional Development (SCPD) to jointly offer two courses in SCPD's *Strategic Decision and Risk Management Program*. These two courses, *Decision Quality* and *Decision Leadership*, were offered in Houston, Texas in December 2011. The courses were well attended by executives and managers in the energy industry. We plan a future offering in January 2014.

Promotion Review
2b – Lists

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

SUPERVISING COMMITTEES

Below, I describe my ongoing PhD, MS, and undergraduate research supervisions.

COMMITTEES IN PROGRESS

I am currently supervising (sole supervisor) the three PhD students shown in Table 1. The numbers correspond to numerical order of all my PhD supervisions; I have graduated three PhD students to date (two at UT). All three of these students have passed the qualifying exam, but have not completed their PhD dissertation proposal. Robert Hammond will propose on September 20, 2013. He already has three refereed journal publications ([3], [4], and [8] on my CV). Tao Huang will propose during the Spring 2014 semester. Chris Hadlock will most likely propose during the Fall 2014 semester.

TABLE 1: ONGOING DOCTORAL SUPERVISIONS

| # | Student | Degree Program | Graduation Date | Dissertation Title | Current Position |
|---|----------------|----------------|-----------------|--|-------------------------------------|
| 4 | Robert Hammond | ORIE | Est: Spring 14 | The Accuracy of Discretizations in Decision Analysis | PhD Student (and intern at Chevron) |
| 5 | Tao Huang | ORIE | Est: Spring 15 | Optimal Assessment Protocols in Decision Analysis | PhD Student |
| 6 | Chris Hadlock | ORIE | Est: Spring 15 | System Reliability with Partial Information | PhD Student |

I am currently supervising my 14th MS student at UT, as shown below. Luis Mendoza-Nativida should graduate in the Spring of 2014. This summer, I helped Luis obtain an internship at a decision-analysis company in Houston. This firm would like to hire Luis upon graduation.

TABLE 2: ONGOING MASTER'S SUPERVISIONS

| # | Student | Degree Program | Graduation Date | Thesis/Report Title |
|----|-----------------------|----------------|-----------------|---|
| 14 | Luis Mendoza-Nativida | ORIE | Spring 14 | Value of Information in Oil & Gas Plays |

UNDERGRADUATE RESEARCH COMMITTEES

As mentioned in my Teaching Statement, as part of my NSF CAREER grant (SES-0954371), I established an undergraduate certificate program in operations research, which I entitled "Management Science & Engineering." This program was funded with a \$20,000 gift from the Department of Mechanical Engineering's PROCEED program, which received gifts from Ford Motor Company and Applied Materials. This money is used to provide nominal fellowships to students who are accepted into the program and to support the program's administration.

The goal of the program is to encourage outstanding Mechanical Engineering undergraduates to pursue graduate study. In order to obtain a certificate, students must complete three courses in ORIE, including at least one graduate course, and complete an original research project with an ORIE faculty member. I have been the advisor for three students in this program: Michael Aragon, Michael Yoho, and Vivienne Zhang. I worked with them to design their program and supervised their research project.

Currently, there are no undergraduates enrolled in this program. However, I hope to change this during the Fall semester, when I will be teaching ME 335 (Engineering Statistics) for the first time. The students enrolled in ME 335 are at the right point in their undergraduate education to consider this certificate program.

BUDGET COUNCIL STATEMENT OF PEER TEACHING

ERIC BICKEL

Decision Analysis is a graduate-level elective offered in the Graduate Program in Operations Research & Industrial Engineering. The lecture was attended by 13 students.

At the beginning of the lecture, Dr. Bickel asked whether students had questions on the pending homework, which was due in one week. The students had apparently recently received the assignment. One student was confused on a homework question. Dr. Bickel displayed the homework on the LCD projector, and answered the student's question in some detail. Dr. Bickel addressed the student by name, when doing so.

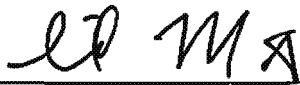
The lecture's topic involved the notion of computing a *certainty equivalent* under: (i) an exponential utility function and (ii) a log-based utility function. Dr. Bickel emphasized a fact that students had learned earlier, that exponential utility functions exhibit constant risk aversion and that log-based utility functions have a risk aversion that is a function of wealth. The former property eases computation of certainty equivalents in case (i). Dr. Bickel also indicated why different buying and selling prices arise under a log-based utility function. Dr. Bickel further emphasized the importance of understanding a decision maker's risk preference when choosing an appropriate utility function.

Dr. Bickel used PowerPoint slides, accompanied by writing on a tablet PC. The slides had been made available earlier to the students, and most were making additional notes on the slides during the lecture. Dr. Bickel also illustrated computations of certainty equivalents in an Excel spreadsheet that had also been made available to the students. The lecture was interactive, and students were clearly comfortable asking questions and making comments.

Assessment and Suggestions: Dr. Bickel presented the main ideas of the lecture in a clear and well-organized manner. There was a strong emphasis on the material's practical relevance. Dr. Bickel gave students ample opportunities to make comments and ask questions, both on their homework, which had been made available to them before class, and on the main lecture topic. Dr. Bickel addressed the students by name, and he had clearly fostered an interactive classroom. Dr. Bickel made effective use of media via PowerPoint slides, writing on a tablet PC, and using an overhead camera projector. Overall, Dr. Bickel is clearly a very effective instructor. The only minor criticism I had was that Dr. Bickel, in my view, dwelled on the student's question regarding the homework for too long. Other questions were answered clearly and with appropriate attention.

Date of review: Thursday, April 5, 2012

Course: ORI 397 Decision Analysis, 8:00am-9:30am



Dr. David P. Morton

Professor

Engineering Foundation Endowed Professor #1

BUDGET COUNCIL STATEMENT OF PEER TEACHING

ERIC BICKEL

Decision Analysis: Decision Analysis is a graduate-level elective offered in the Graduate Program in Operations Research & Industrial Engineering. The lecture was attended by about 30 students. The lecture's topic involved issues associated with eliciting estimates from "experts." Multiple pitfalls are associated with such elicitations, including anchoring, over-confidence, bias associated with most recently learned information, etc., and the class covered these topics. The class began in an interactive manner with a questionnaire that the class took and submitted. A teaching assistant helped quickly tally results. The students were unaware that there were two versions of the questionnaire, which were designed to illustrate a notion of anchoring. It did so in a compelling manner. Dr. Bickel used PowerPoint slides, accompanied by writing on a tablet PC, also in an effective manner.

The remainder of the lecture was interactive in nature, and concluded by pointing to the fact that a more in-depth study of such assessments would be pursued in future lectures. Students appeared to understand the material. It was clear that the students felt free to ask questions, and several did so during the course of the lecture. Dr. Bickel understood their questions, sometimes rephrased the question when repeating it to the class, and he answered the questions well.

Towards the end of the lecture, Dr. Bickel reserved time to ask whether students had questions on the pending homework, which was due in two days and case study, which was due later. Four students did have questions. It was clear from one question, that the student didn't understand the nature of a differential transmission. Dr. Bickel made a graceful joke, in context, but still answered the question, without making the student feel awkward. When calling on each student, Dr. Bickel did so by name.

Assessment and Suggestions for Decision Analysis: Dr. Bickel presented the main ideas of the lecture in a clear manner. There was a strong emphasis on the material's practical relevance. The class was well organized. He gave students ample opportunities to ask questions and make comments, was attentive to those questions, knew the students by name, and had clearly fostered an interactive classroom. Dr. Bickel made effective use of media via PowerPoint slides, and writing on a tablet PC. Overall, Dr. Bickel is clearly a very effective instructor. I had no suggestions for improving the lecture.

Date reviewed: Tuesday, April 5, 2011

Course: ORI 397 Decision Analysis, 8:00am-9:30am

Engineering Finance: Engineering Finance is a core undergraduate course in the Mechanical Engineering curriculum. The lecture was attended by about 85 students. Dr. Bickel used a microphone in a large classroom. The lecture began with announcements concerning "Case Study #3" on whether solar panels should be installed on a house in Austin, Dr. Bickel's house, in particular. Among other things, Dr. Bickel had saved his electrical bills since purchasing the house around 2009. Students asked clarifying questions on the case study. Dr. Bickel repeated each question so that all could hear, and answered the questions effectively. He corrected one typo in the case, on the fly. The students seemed to understand the case study, which is fairly involved.

Part of the discussion on the case study, involve alternative ways of measuring the value of a project, including return on investment (ROI), internal rate of return (IRR), and net present value (NPV). While NPV is preferred, sometimes ROI and IRR are advocated by some. Dr. Bickel made an effective joke that Texas A&M had topped all university rankings (showing the offending newspaper article), but he effectively argued that NPV is the preferred performance measure.

The main topic of the lecture involved handling project uncertainty in assessing its value. Dr. Bickel used PowerPoint slides, but made the presentation interactive by writing on a tablet PC, using multiple colors, and also using the white board, all seamlessly. Tornado diagrams were reviewed, as were probability density function and cumulative distribution function characterizations of NPV. Dr. Bickel emphasized the "big picture" in terms of the decision-analysis cycle, and indicated where precisely this lecture's topic fit into that picture.

Assessment and Suggestions for Engineering Finance: Dr. Bickel gave a clear, effective, and well-organized lecture. Even though the room was large, and there were many students, the students were comfortable asking questions. Dr. Bickel had clearly fostered an interactive classroom. Overall, Dr. Bickel is a very effective instructor. My suggestions were relatively minor. I sat in the back of the classroom, and due to the room's slope, the distance, and the lights in the front of the classroom, the LCD projected PowerPoint and Excel documents were a bit washed out. I suggesting turning out the front set of lights when using the LCD projection. An irrelevant announcement popped up on Dr. Bickel's laptop, and I recommended turning those off during lecture.

Date: Tuesday, April 5, 2011

Course: ME 353 Engineering Finance, 2:00pm-3:30pm



Dr. David P. Morton

Professor

Engineering Foundation Endowed Professor #1

BICKEL, J ERIC

Engineering
Mechanical Engineering

09/04/13

Summary of Recent (All Years In Rank) UT Austin Course-Instructor Survey Results
Overall Course/Instructor Items

| Semester | Course Number | Course Title | Enrollment | | Instructor Averages* | | College/School Averages** | | | |
|-----------|---------------|-----------------------|--|--|--------------------------------|----------------------------|--------------------------------|----------------------------|----------------------|--|
| | | | No. of Students Enrolled on 12th Class Day | No. of Surveys Returned at End of Semester | Overall Instructor Rating Avg. | Overall Course Rating Avg. | Overall Instructor Rating Avg. | Overall Course Rating Avg. | No. Classes Surveyed | |
| Spring 09 | ORI 397 | DECISION ANALYSIS | 31 | 26 | 4.1 | 3.9 | N/A *** | N/A *** | N/A | |
| Fall 09 | ORI 390R | 1-APPLIED PROBABILITY | 32 | 31 | 4.2 | 4.0 | N/A *** | N/A *** | N/A | |
| Fall 09 | M E 353 | ENGINEERING FINANCE | 121 | 38 | 3.3 | 3.2 | N/A *** | N/A *** | N/A | |
| Spring 10 | ORI 397 | DECISION ANALYSIS | 23 | 21 | 4.4 | 4.2 | N/A *** | N/A *** | N/A | |
| Fall 10 | M E 353 | ENGINEERING FINANCE | 124 | 52 | 3.4 | 3.0 | N/A *** | N/A *** | N/A | |
| Spring 11 | ORI 397 | DECISION ANALYSIS | 38 | 21 | 4.7 | 4.6 | N/A *** | N/A *** | N/A | |
| Spring 11 | M E 353 | ENGINEERING FINANCE | 101 | 34 | 3.2 | 3.1 | N/A *** | N/A *** | N/A | |
| Fall 11 | ORI 390R | 1-APPLIED PROBABILITY | 34 | 33 | 4.3 | 4.2 | N/A *** | N/A *** | N/A | |
| Fall 11 | M E 353 | ENGINEERING FINANCE | 141 | 62 | 3.8 | 3.5 | N/A *** | N/A *** | N/A | |
| Spring 12 | ORI 397 | DECISION ANALYSIS | 14 | 13 | 4.4 | 4.2 | N/A *** | N/A *** | N/A | |
| Fall 12 | ORI 390R | 1-APPLIED PROBABILITY | 37 | 35 | 4.3 | 4.1 | N/A *** | N/A *** | N/A | |
| Spring 13 | ORI 390R | 17-DECISION ANALYSIS | 37 | 34 | 4.3 | 4.2 | N/A *** | N/A *** | N/A | |
| Spring 13 | M E 353 | ENGINEERING FINANCE | 96 | 58 | 4.5 | 4.2 | N/A *** | N/A *** | N/A | |

*For the computation of the averages, points were assigned to student responses as follows:
Excellent = 5, Very Good = 4, Satisfactory = 3, Unsatisfactory = 2, Very Unsatisfactory = 1

**College/school averages are the average of class averages, based on all courses surveyed in the instructor's college or school during the academic year in which the course was taught.

***New CIS forms were implemented in the fall 2000 semester. The average rating on the overall course and instructor questions on the new Basic and Expanded forms have been found to be approximately 0.1 to 0.2 points lower than those ratings on the old Common form.

Prepared by the Measurement and Evaluation Center

Page 1

CONFIDENTIAL

UT Austin_0022981

UNIVERSITY OF TEXAS AT AUSTIN
Bickel, J Eric ORI397 18840
B000 Basic

COURSE-INSTRUCTOR SURVEY
DECISION ANALYSIS

Spring 2009 DEPARTMENT COPY
Enrollment = 30
Surveys Returned = 26

| | NUMBER CHOOSING EACH RESPONSE | | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str | Disag | Disagree | Neutral | Agree | Str Agree | | |
| 1 COURSE WELL-ORGANIZED | 1 | | 1 | 3 | 10 | 11 | 26 | 4.1 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 1 | | 0 | 6 | 9 | 10 | 26 | 4.0 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 1 | | 1 | 3 | 11 | 10 | 26 | 4.1 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 1 | | 0 | 1 | 6 | 18 | 26 | 4.5 |
| 5 STUDENT FREEDOM OF EXPRESSION | 1 | | 0 | 1 | 7 | 17 | 26 | 4.5 |
| 6 COURSE OF VALUE TO DATE | 1 | | 0 | 2 | 8 | 15 | 26 | 4.4 |
| | | | | | | | | |
| | Vry | Unsat | Unsat | Satisfact | Very Good | Excellent | | |
| 7 OVERALL INSTRUCTOR RATING | 0 | | 0 | 7 | 9 | 10 | 26 | 4.1 |
| 8 OVERALL COURSE RATING | 0 | | 0 | 9 | 11 | 6 | 26 | 3.9 |
| | | | | | | | | |
| | Excessive | | High | Average | Light | Insuffic | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 8 | | 9 | 8 | 1 | 0 | 26 | |
| | | | | | | | | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 0 | 0 | 1 | 4 | 21 | | 26 | |
| | | | | | | | | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | | |
| 11 PROBABLE COURSE GRADE | 22 | 3 | 0 | 0 | 0 | | 25 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

Scanned: 05/27/2009

Printed: 07/18/2013

UNIVERSITY OF TEXAS AT AUSTIN
Bickel, J Eric ORI390R
B000 Basic

19255

COURSE-INSTRUCTOR SURVEY
1-APPLIED PROBABILITY

Fall 2009 DEPARTMENT COPY
Enrollment = 32
Surveys Returned = 31

| | NUMBER CHOOSING EACH RESPONSE | | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str | Disag | Disagree | Neutral | Agree | Str Agree | | |
| 1 COURSE WELL-ORGANIZED | 0 | | 0 | 1 | 17 | 13 | 31 | 4.4 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 0 | | 0 | 3 | 16 | 12 | 31 | 4.3 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 0 | | 0 | 5 | 15 | 11 | 31 | 4.2 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 0 | | 0 | 0 | 14 | 17 | 31 | 4.5 |
| 5 STUDENT FREEDOM OF EXPRESSION | 0 | | 0 | 0 | 15 | 16 | 31 | 4.5 |
| 6 COURSE OF VALUE TO DATE | 0 | | 1 | 2 | 17 | 11 | 31 | 4.2 |
| | | | | | | | | |
| | Vry | Unsat | Unsat | Satisfact | Very Good | Excellent | | |
| 7 OVERALL INSTRUCTOR RATING | 0 | | 1 | 4 | 15 | 11 | 31 | 4.2 |
| 8 OVERALL COURSE RATING | 0 | | 1 | 6 | 16 | 8 | 31 | 4.0 |
| | | | | | | | | |
| | Excessive | | High | Average | Light | Insuffic | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 3 | | 7 | 17 | 3 | 1 | 31 | |
| | | | | | | | | |
| | Less | 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 0 | | 0 | 1 | 5 | 11 | 17 | |
| | | | | | | | | |
| | <u>A</u> | | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | |
| 11 PROBABLE COURSE GRADE | 12 | | 12 | 4 | 0 | 0 | 28 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

Scanned: 01/04/2010

Printed: 07/18/2013

UNIVERSITY OF TEXAS AT AUSTIN
 Bickel, J Eric M E353 18640
 B000 Basic
 SURVEYED WITH: 18645 18650 18655 18660 18665

COURSE-INSTRUCTOR SURVEY
 ENGINEERING FINANCE

Fall 2009 DEPARTMENT COPY
 Enrollment = 121
 Surveys Returned = 38

| | NUMBER CHOOSING EACH RESPONSE | | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str | Disag | Disagree | Neutral | Agree | Str Agree | | |
| 1 COURSE WELL-ORGANIZED | 0 | | 2 | 6 | 24 | 5 | 37 | 3.9 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 1 | | 2 | 10 | 20 | 4 | 37 | 3.6 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 1 | | 1 | 16 | 15 | 4 | 37 | 3.5 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 0 | | 2 | 6 | 23 | 6 | 37 | 3.9 |
| 5 STUDENT FREEDOM OF EXPRESSION | 0 | | 2 | 6 | 23 | 5 | 36 | 3.9 |
| 6 COURSE OF VALUE TO DATE | 1 | | 4 | 9 | 15 | 8 | 37 | 3.7 |
| | Vry | Unsat | Unsat | Satisfact | Very Good | Excellent | | |
| 7 OVERALL INSTRUCTOR RATING | 2 | | 2 | 20 | 10 | 3 | 37 | 3.3 |
| 8 OVERALL COURSE RATING | 1 | | 4 | 20 | 11 | 2 | 38 | 3.2 |
| | Excessive | | High | Average | Light | Insuffic | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 4 | | 12 | 21 | 1 | 0 | 38 | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 0 | 0 | 4 | 15 | 15 | | 34 | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | | |
| 11 PROBABLE COURSE GRADE | 24 | 9 | 1 | 0 | 1 | | 35 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

Scanned: 01/04/2010

Printed: 07/18/2013

UNIVERSITY OF TEXAS AT AUSTIN
Bickel, J Eric ORI397
B000 Basic

19025

COURSE-INSTRUCTOR SURVEY
DECISION ANALYSIS

Spring 2010 DEPARTMENT COPY
Enrollment = 23
Surveys Returned = 21

| | NUMBER CHOOSING EACH RESPONSE | | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str | Disag | Disagree | Neutral | Agree | Str Agree | | |
| 1 COURSE WELL-ORGANIZED | 0 | 0 | 0 | 0 | 9 | 12 | 21 | 4.6 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 0 | 1 | 0 | 0 | 8 | 12 | 21 | 4.5 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 0 | 1 | 1 | 1 | 8 | 11 | 21 | 4.4 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 0 | 0 | 1 | 3 | 17 | | 21 | 4.8 |
| 5 STUDENT FREEDOM OF EXPRESSION | 0 | 0 | 2 | 5 | 14 | | 21 | 4.6 |
| 6 COURSE OF VALUE TO DATE | 0 | 0 | 2 | 7 | 12 | | 21 | 4.5 |
| | | | | | | | | |
| | Vry | Unsat | Unsat | Satisfact | Very Good | Excellent | | |
| 7 OVERALL INSTRUCTOR RATING | 0 | 0 | 3 | 6 | 12 | | 21 | 4.4 |
| 8 OVERALL COURSE RATING | 0 | 0 | 2 | 12 | 7 | | 21 | 4.2 |
| | | | | | | | | |
| | Excessive | High | Average | Light | Insuffic | | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 2 | 7 | 11 | 1 | 0 | | 21 | |
| | | | | | | | | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 0 | 0 | 0 | 5 | 14 | | 19 | |
| | | | | | | | | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | | |
| 11 PROBABLE COURSE GRADE | 10 | 9 | 0 | 0 | 0 | | 19 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

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Printed: 07/18/2013

UNIVERSITY OF TEXAS AT AUSTIN
 Bickel, J Eric M E353 18385
 B000 Basic
 SURVEYED WITH: 18390 18395 18400 18405 18410

COURSE-INSTRUCTOR SURVEY
 ENGINEERING FINANCE

Fall 2010 DEPARTMENT COPY
 Enrollment = 123
 Surveys Returned = 52

| | NUMBER CHOOSING EACH RESPONSE | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|----------|-----------|-----------|-----------|--------------------------|------|
| | Str | Disag | Disagree | Neutral | Agree | Str Agree | |
| 1 COURSE WELL-ORGANIZED | 2 | | 3 | 5 | 34 | 8 | 52 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 3 | | 4 | 10 | 29 | 6 | 52 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 5 | | 6 | 14 | 23 | 4 | 52 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 1 | | 6 | 8 | 31 | 6 | 52 |
| 5 STUDENT FREEDOM OF EXPRESSION | 2 | | 4 | 11 | 30 | 5 | 52 |
| 6 COURSE OF VALUE TO DATE | 3 | | 3 | 8 | 22 | 16 | 52 |
| | Vry | Unsat | Unsat | Satisfact | Very Good | Excellent | |
| 7 OVERALL INSTRUCTOR RATING | 3 | | 7 | 18 | 16 | 8 | 52 |
| 8 OVERALL COURSE RATING | 9 | | 5 | 18 | 17 | 3 | 52 |
| | Excessive | | High | Average | Light | Insuffic | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 14 | | 20 | 18 | 0 | 0 | 52 |
| | Less | 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | |
| 10 OVERALL UT GRADE POINT AVERAGE | 0 | | 0 | 8 | 29 | 13 | 50 |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | |
| 11 PROBABLE COURSE GRADE | 15 | | 25 | 10 | 1 | 0 | 51 |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

UNIVERSITY OF TEXAS AT AUSTIN
Bickel, J Eric ORI397 19290
B000 Basic

COURSE-INSTRUCTOR SURVEY
DECISION ANALYSIS

Spring 2011 DEPARTMENT COPY
Enrollment = 38
Surveys Returned = 21

| | NUMBER CHOOSING EACH RESPONSE | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str Disag | Disagree | Neutral | Agree | Str Agree | | |
| 1 COURSE WELL-ORGANIZED | 0 | 0 | 0 | 6 | 15 | 21 | 4.7 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 0 | 0 | 0 | 5 | 16 | 21 | 4.8 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 0 | 0 | 2 | 8 | 11 | 21 | 4.4 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 0 | 0 | 0 | 2 | 19 | 21 | 4.9 |
| 5 STUDENT FREEDOM OF EXPRESSION | 0 | 0 | 0 | 6 | 15 | 21 | 4.7 |
| 6 COURSE OF VALUE TO DATE | 0 | 1 | 0 | 6 | 14 | 21 | 4.6 |
| | | | | | | | |
| | Vry Unsat | Unsat | Satisfact | Very Good | Excellent | | |
| 7 OVERALL INSTRUCTOR RATING | 0 | 0 | 1 | 4 | 16 | 21 | 4.7 |
| 8 OVERALL COURSE RATING | 0 | 0 | 1 | 7 | 13 | 21 | 4.6 |
| | | | | | | | |
| | Excessive | High | Average | Light | Insuffic | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 0 | 12 | 7 | 1 | 0 | 20 | |
| | | | | | | | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 1 | 0 | 2 | 2 | 16 | 21 | |
| | | | | | | | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | |
| 11 PROBABLE COURSE GRADE | 11 | 9 | 1 | 0 | 0 | 21 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

UNIVERSITY OF TEXAS AT AUSTIN
 Bickel, J Eric M E353 18560
 B000 Basic
 SURVEYED WITH: 18565 18570 18575 18580 18585

COURSE-INSTRUCTOR SURVEY
 ENGINEERING FINANCE

Spring 2011 DEPARTMENT COPY
 Enrollment = 99
 Surveys Returned = 34

| | NUMBER CHOOSING EACH RESPONSE | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str Disag | Disagree | Neutral | Agree | Str Agree | | |
| 1 COURSE WELL-ORGANIZED | 0 | 3 | 5 | 17 | 9 | 34 | 3.9 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 4 | 4 | 5 | 16 | 5 | 34 | 3.4 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 4 | 5 | 9 | 8 | 8 | 34 | 3.3 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 2 | 8 | 10 | 10 | 4 | 34 | 3.2 |
| 5 STUDENT FREEDOM OF EXPRESSION | 0 | 4 | 10 | 11 | 9 | 34 | 3.7 |
| 6 COURSE OF VALUE TO DATE | 3 | 4 | 1 | 14 | 12 | 34 | 3.8 |
| | | | | | | | |
| | Vry Unsat | Unsat | Satisfact | Very Good | Excellent | | |
| 7 OVERALL INSTRUCTOR RATING | 3 | 4 | 12 | 13 | 2 | 34 | 3.2 |
| 8 OVERALL COURSE RATING | 4 | 4 | 11 | 13 | 2 | 34 | 3.1 |
| | | | | | | | |
| | Excessive | High | Average | Light | Insuffic | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 9 | 13 | 11 | 1 | 0 | 34 | |
| | | | | | | | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 0 | 1 | 6 | 14 | 13 | 34 | |
| | | | | | | | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | |
| 11 PROBABLE COURSE GRADE | 13 | 18 | 2 | 1 | 0 | 34 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

UNIVERSITY OF TEXAS AT AUSTIN
Bickel, J Eric ORI390R 19295
B000 Basic

COURSE-INSTRUCTOR SURVEY
1-APPLIED PROBABILITY

Fall 2011 DEPARTMENT COPY
Enrollment = 34
Surveys Returned = 33

| | NUMBER CHOOSING EACH RESPONSE | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str Disag | Disagree | Neutral | Agree | Str Agree | | |
| 1 COURSE WELL-ORGANIZED | 0 | 0 | 0 | 10 | 23 | 33 | 4.7 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 0 | 0 | 3 | 10 | 20 | 33 | 4.5 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 0 | 0 | 6 | 8 | 19 | 33 | 4.4 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 0 | 2 | 0 | 10 | 21 | 33 | 4.5 |
| 5 STUDENT FREEDOM OF EXPRESSION | 0 | 0 | 2 | 6 | 25 | 33 | 4.7 |
| 6 COURSE OF VALUE TO DATE | 0 | 0 | 1 | 9 | 23 | 33 | 4.7 |
| | | | | | | | |
| | Vry Unsat | Unsat | Satisfact | Very Good | Excellent | | |
| 7 OVERALL INSTRUCTOR RATING | 0 | 0 | 4 | 14 | 15 | 33 | 4.3 |
| 8 OVERALL COURSE RATING | 0 | 0 | 3 | 21 | 9 | 33 | 4.2 |
| | | | | | | | |
| | Excessive | High | Average | Light | Insuffic | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 0 | 10 | 19 | 4 | 0 | 33 | |
| | | | | | | | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 1 | 0 | 1 | 8 | 16 | 26 | |
| | | | | | | | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | |
| 11 PROBABLE COURSE GRADE | 16 | 13 | 3 | 0 | 0 | 32 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

Scanned: 12/21/2011

Printed: 07/18/2013

UNIVERSITY OF TEXAS AT AUSTIN
 Bickel, J Eric M E353 18675
 B000 Basic
 SURVEYED WITH: 18680 18685 18690 18695 18700

COURSE-INSTRUCTOR SURVEY
 ENGINEERING FINANCE

Fall 2011 DEPARTMENT COPY
 Enrollment = 139
 Surveys Returned = 62

| | NUMBER CHOOSING EACH RESPONSE | | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str | Disag | Disagree | Neutral | Agree | Str Agree | | |
| 1 COURSE WELL-ORGANIZED | 0 | | 2 | 3 | 32 | 25 | 62 | 4.3 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 2 | | 1 | 15 | 21 | 23 | 62 | 4.0 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 0 | | 3 | 12 | 25 | 21 | 61 | 4.0 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 1 | | 8 | 3 | 32 | 17 | 61 | 3.9 |
| 5 STUDENT FREEDOM OF EXPRESSION | 0 | | 3 | 6 | 24 | 28 | 61 | 4.3 |
| 6 COURSE OF VALUE TO DATE | 3 | | 0 | 12 | 18 | 28 | 61 | 4.1 |
| | Vry | Unsat | Unsat | Satisfact | Very Good | Excellent | | |
| 7 OVERALL INSTRUCTOR RATING | 1 | | 2 | 20 | 21 | 17 | 61 | 3.8 |
| 8 OVERALL COURSE RATING | 2 | | 5 | 22 | 22 | 10 | 61 | 3.5 |
| | Excessive | | High | Average | Light | Insuffic | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 11 | | 30 | 19 | 1 | 0 | 61 | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 1 | 0 | 10 | 24 | 26 | | 61 | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | | |
| 11 PROBABLE COURSE GRADE | 30 | 28 | 3 | 0 | 0 | | 61 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

Scanned: 12/21/2011

Printed: 07/18/2013

UNIVERSITY OF TEXAS AT AUSTIN
Bickel, J Eric ORI397 19100
B000 Basic

COURSE-INSTRUCTOR SURVEY
DECISION ANALYSIS

Spring 2012 DEPARTMENT COPY
Enrollment = 14
Surveys Returned = 13

| | NUMBER CHOOSING EACH RESPONSE | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str Disag | Disagree | Neutral | Agree | Str Agree | | |
| 1 COURSE WELL-ORGANIZED | 0 | 0 | 1 | 2 | 10 | 13 | 4.7 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 0 | 1 | 0 | 6 | 6 | 13 | 4.3 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 0 | 0 | 1 | 3 | 9 | 13 | 4.6 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 0 | 0 | 0 | 2 | 11 | 13 | 4.8 |
| 5 STUDENT FREEDOM OF EXPRESSION | 0 | 0 | 1 | 2 | 10 | 13 | 4.7 |
| 6 COURSE OF VALUE TO DATE | 0 | 0 | 1 | 3 | 9 | 13 | 4.6 |
| | | | | | | | |
| | Vry Unsat | Unsat | Satisfact | Very Good | Excellent | | |
| 7 OVERALL INSTRUCTOR RATING | 0 | 0 | 2 | 4 | 7 | 13 | 4.4 |
| 8 OVERALL COURSE RATING | 0 | 0 | 2 | 6 | 5 | 13 | 4.2 |
| | | | | | | | |
| | Excessive | High | Average | Light | Insuffic | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 2 | 4 | 6 | 1 | 0 | 13 | |
| | | | | | | | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 0 | 0 | 0 | 3 | 10 | 13 | |
| | | | | | | | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | |
| 11 PROBABLE COURSE GRADE | 7 | 5 | 0 | 0 | 0 | 12 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

Scanned: 05/22/2012

Printed: 07/18/2013

UNIVERSITY OF TEXAS AT AUSTIN
Bickel, J Eric ORI390R 19190
B000 Basic

COURSE-INSTRUCTOR SURVEY
1-APPLIED PROBABILITY

Fall 2012 DEPARTMENT COPY
Enrollment = 37
Surveys Returned = 35

| | NUMBER CHOOSING EACH RESPONSE | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str | Disag | Disagree | Neutral | Agree | Str Agree | |
| 1 COURSE WELL-ORGANIZED | 0 | 0 | 0 | 1 | 9 | 25 | 4.7 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 0 | 0 | 0 | 1 | 13 | 21 | 4.6 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 0 | 0 | 0 | 4 | 9 | 22 | 4.5 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 0 | 1 | 0 | 0 | 13 | 21 | 4.5 |
| 5 STUDENT FREEDOM OF EXPRESSION | 1 | 0 | 0 | 0 | 12 | 22 | 4.5 |
| 6 COURSE OF VALUE TO DATE | 0 | 1 | 0 | 0 | 18 | 16 | 4.4 |
| | | | | | | | |
| | Vry | Unsat | Unsat | Satisfact | Very Good | Excellent | |
| 7 OVERALL INSTRUCTOR RATING | 0 | 1 | 3 | 17 | 14 | 35 | 4.3 |
| 8 OVERALL COURSE RATING | 0 | 1 | 5 | 20 | 9 | 35 | 4.1 |
| | | | | | | | |
| | Excessive | High | Average | Light | Insuffic | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 2 | 2 | 29 | 2 | 0 | 35 | |
| | | | | | | | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 1 | 0 | 1 | 12 | 12 | 26 | |
| | | | | | | | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | |
| 11 PROBABLE COURSE GRADE | 19 | 15 | 0 | 0 | 0 | 34 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

Scanned: 01/16/2013

Printed: 07/18/2013

UNIVERSITY OF TEXAS AT AUSTIN
Bickel, J Eric ORI390R 19025
B000 Basic

COURSE-INSTRUCTOR SURVEY
17-DECISION ANALYSIS

Spring 2013 DEPARTMENT COPY
Enrollment = 36
Surveys Returned = 34

| | NUMBER CHOOSING EACH RESPONSE | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str | Disag | Disagree | Neutral | Agree | Str Agree | |
| 1 COURSE WELL-ORGANIZED | 0 | | 1 | 2 | 16 | 15 | 34 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 0 | 0 | | 2 | 14 | 18 | 34 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 0 | | 1 | 3 | 12 | 17 | 33 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 0 | | 1 | 4 | 13 | 16 | 34 |
| 5 STUDENT FREEDOM OF EXPRESSION | 0 | 0 | | 2 | 12 | 20 | 34 |
| 6 COURSE OF VALUE TO DATE | 0 | | 0 | 5 | 12 | 17 | 34 |
| | | | | | | | |
| | Vry | Unsat | Unsat | Satisfact | Very Good | Excellent | |
| 7 OVERALL INSTRUCTOR RATING | 0 | | 0 | 6 | 12 | 16 | 34 |
| 8 OVERALL COURSE RATING | 0 | | 0 | 6 | 15 | 12 | 33 |
| | | | | | | | |
| | Excessive | | High | Average | Light | Insuffic | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 5 | | 15 | 11 | 1 | 0 | 32 |
| | | | | | | | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 0 | 0 | 2 | 9 | 21 | | 32 |
| | | | | | | | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | |
| 11 PROBABLE COURSE GRADE | 17 | 14 | 0 | 0 | 0 | | 31 |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

Scanned: 06/05/2013

Printed: 07/18/2013

UNIVERSITY OF TEXAS AT AUSTIN
 Bickel, J Eric M E353 18360
 B000 Basic
 SURVEYED WITH: 18365 18370 18375 18380 18385

COURSE-INSTRUCTOR SURVEY
 ENGINEERING FINANCE

Spring 2013 DEPARTMENT COPY
 Enrollment = 96
 Surveys Returned = 58

| | NUMBER CHOOSING EACH RESPONSE | | | | | NO. REPLIES THIS ITEM | AVG. |
|---|-------------------------------|-----------|-----------|-----------|-----------|--------------------------|------|
| | Str Disag | Disagree | Neutral | Agree | Str Agree | | |
| 1 COURSE WELL-ORGANIZED | 0 | 0 | 0 | 19 | 39 | 58 | 4.7 |
| 2 COMMUNICATED INFORMATION EFFECTIVELY | 0 | 0 | 3 | 21 | 34 | 58 | 4.5 |
| 3 SHOWED INTEREST IN STUDENT PROGRESS | 0 | 0 | 2 | 20 | 36 | 58 | 4.6 |
| 4 ASSIGNMENTS AND TESTS RETURNED PROMPTLY | 0 | 1 | 8 | 21 | 28 | 58 | 4.3 |
| 5 STUDENT FREEDOM OF EXPRESSION | 0 | 0 | 2 | 14 | 42 | 58 | 4.7 |
| 6 COURSE OF VALUE TO DATE | 0 | 0 | 3 | 17 | 37 | 57 | 4.6 |
| | Vry Unsat | Unsat | Satisfact | Very Good | Excellent | | |
| 7 OVERALL INSTRUCTOR RATING | 0 | 0 | 5 | 18 | 34 | 57 | 4.5 |
| 8 OVERALL COURSE RATING | 0 | 1 | 9 | 23 | 24 | 57 | 4.2 |
| | Excessive | High | Average | Light | Insuffic | | |
| 9 STUDENT RATING OF COURSE WORKLOAD | 4 | 7 | 44 | 2 | 0 | 57 | |
| | Less 2.00 | 2.00-2.49 | 2.50-2.99 | 3.00-3.49 | 3.50-4.00 | | |
| 10 OVERALL UT GRADE POINT AVERAGE | 0 | 1 | 5 | 22 | 29 | 57 | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>F</u> | | |
| 11 PROBABLE COURSE GRADE | 48 | 9 | 0 | 0 | 0 | 57 | |
| ----- | | | | | | | |
| OPTIONAL ITEMS | | | | | | | |
| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>E</u> | | |
| 1 OPTIONAL QUESTION 1 | 0 | 6 | 12 | 24 | 9 | 51 | |
| 2 OPTIONAL QUESTION 2 | 0 | 2 | 18 | 20 | 10 | 50 | |
| 3 OPTIONAL QUESTION 3 | 2 | 2 | 13 | 12 | 10 | 39 | |
| 4 OPTIONAL QUESTION 4 | 1 | 3 | 16 | 10 | 9 | 39 | |
| 5 OPTIONAL QUESTION 5 | 1 | 0 | 18 | 5 | 13 | 37 | |
| 6 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 7 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 8 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 9 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 10 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 11 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 12 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 13 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 14 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 15 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 16 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 17 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 18 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |
| 20 NOT USED | 0 | 0 | 0 | 0 | 0 | 0 | |

For the computation of averages, values were assigned on a 5-point scale so that the most favorable response was assigned a value of 5 and the least favorable response was assigned a value of 1.

Scanned: 06/05/2013

Printed: 07/18/2013

09/03/13
PROGRAM GSPBFRP3

THE UNIVERSITY OF TEXAS AT AUSTIN
OFFICE OF GRADUATE STUDIES
COMMITTEE REPORT, MASTERS AND DOCTORAL
FOR BICKEL, JAMES E

PAGE: 17

| NAME | EID | LAST SEM | COMM POSITION | MAST OR DOCT | DEGREE | FIELD | YYS | 2ND DEGREE | FIELD | YYS |
|--------------------------|---------|----------|---------------|--------------|--------|----------------|-------|------------|---------------|-------|
| AGRAWAL, SHUBHAM | sa22446 | 116 | CHAIR | M | M.S.E. | OPERATIONS RE | 20099 | M.A. | ENERGY AND EA | 20116 |
| AGRAWAL, SHUBHAM | sa22446 | 116 | CHAIR | M | M.S.E. | OPERATIONS RE | 20099 | M.A. | ENERGY AND EA | 20116 |
| ANDERSON, AUSTIN DAVID | ada427 | 139 | MEMBER | M | M.S.E. | MECHANICAL EN | 20126 | | | |
| BACA, ANGEL MARIO | amb3782 | 099 | CHAIR | M | M.A. | ENERGY AND EA | 20099 | | | |
| CHEN, JIUN-YIH | jychen | 112 | MEMBER | D | PH.D. | CIVIL ENGINEER | 20112 | | | |
| COHEN, STUART MICHAEL | smc2624 | 126 | MEMBER | D | PH.D. | MECHANICAL EN | 20126 | | | |
| DONG, CHANGGUI | cd23698 | 139 | MEMBER | D | | | | | | |
| GAO, ZHUFENG | zg737 | 139 | MEMBER | D | | | | | | |
| HAMMOND, ROBERT KINCAID | rkh255 | 139 | CHAIR | M | M.S.E. | OPERATIONS RE | 20116 | | | |
| HARRIS, CHIOKE BEM | ch27854 | 139 | MEMBER | D | | | | | | |
| HE, YING | yh3542 | 139 | MEMBER | D | | | | | | |
| JO, DOHYUN | dj6742 | 122 | CHAIR | M | M.A. | ENERGY AND EA | 20122 | | | |
| KI, HONG CHUL | hk5874 | 109 | CO-CHAIR | M | M.A. | ENERGY AND EA | 20109 | | | |
| LIANG, ZIYU | zl375 | 129 | MEMBER | D | PH.D. | OPERATIONS RE | 20129 | | | |
| LIMA, LUANA MEDEIROS M. | lm1865 | 119 | MEMBER | D | PH.D. | OPERATIONS RE | 20119 | | | |
| LU, FANG | f13566 | 139 | MEMBER | D | | | | | | |
| MENG, QINGCHAO | qm298 | 126 | MEMBER | M | M.A. | CELL AND MOLE | 20116 | M.S.STAT. | STATISTICS | 20126 |
| MONTIEL CENDEJA, LUIS V. | lvm92 | 122 | CHAIR | D | PH.D. | OPERATIONS RE | 20122 | | | |
| MORALES, BENJAMIN L. | blm998 | 102 | MEMBER | M | M.S.E. | OPERATIONS RE | 20102 | | | |
| MOZANO, JENNIFER MAILE | jo6374 | 102 | CHAIR | M | M.S.E. | OPERATIONS RE | 20102 | | | |
| NADIMPALLI, VAMSI K. | vknb85 | 106 | MEMBER | M | M.S.E. | OPERATIONS RE | 20106 | | | |
| NUNN, LAWRENCE RANDALL | lrn252 | 102 | MEMBER | M | M.S.E. | OPERATIONS RE | 20102 | | | |
| OGUNYOMI, BABAFEMI A. | bao279 | 139 | MEMBER | D | | | | | | |
| PARRA SANCHEZ, CRISTINA | cp23455 | 109 | MEMBER | M | M.S.E. | PETROLEUM ENG | 20109 | | | |

09/03/13
PROGRAM GSPBFRP3THE UNIVERSITY OF TEXAS AT AUSTIN
OFFICE OF GRADUATE STUDIES
COMMITTEE REPORT, MASTERS AND DOCTORAL
FOR BICKEL, JAMES E

PAGE: 18

| NAME | EID | LAST SEM | COMM POSITION | MAST OR DOCT | DEGREE | FIELD | YYS | 2ND DEGREE | FIELD | YYS |
|---------------------------|---------|-------------|------------------|-----------------|--------|---------------|-------|---------------|-------|-----|
| PUERTA ORTEGA, CARLOS A. | cap3222 | 122 | CHAIR | M | M.A. | ENERGY AND EA | 20122 | | | |
| RAMAKRISHNAN, ARJUN | ar29653 | 106 | CHAIR | M | M.S.E. | OPERATIONS RE | 20106 | | | |
| REBEIZ, PAUL PIERRE | ppr85 | 092 | CHAIR | M | M.S.E. | OPERATIONS RE | 20092 | | | |
| SCHEELE, KYLE FRED | ks28835 | 116 | CHAIR | M | M.S.E. | OPERATIONS RE | 20116 | | | |
| THEEYATTUPARAMPIL, VIJO V | vvt68 | 092 | CHAIR | M | M.S.E. | OPERATIONS RE | 20092 | | | |
| WANG, TIANYANG | wangt32 | 112 | MEMBER | D | PH.D. | MANAGEMENT SC | 20112 | | | |
| WYMOND, DAVID TYLER | dw22579 | 112 | CHAIR | M | M.A. | ENERGY AND EA | 20112 | | | |
| ZAN, JING | jz2684 | 122 | MEMBER | D | PH.D. | OPERATIONS RE | 20122 | | | |
| ZAN, KUN | kz779 | 136 | CHAIR | D | PH.D. | OPERATIONS RE | 20136 | | | |
| ZHU, CHEN | cz3334 | 122 | MEMBER | M | M.S.E. | OPERATIONS RE | 20122 | | | |

Promotion Review
4c – Postdocs

J. E. Bickel
Mechanical Engineering (ORJE)

JAMES ERIC BICKEL

POSTDOCTORAL RESEARCHERS

| Name | Degree Granting Institution | Graduation Year |
|--------------|------------------------------------|------------------------|
| Luis Montiel | University of Texas at Austin | 2012 |

BUDGET COUNCIL ASSESSMENT OF RESEARCH, PUBLICATIONS & OTHER EVIDENCE OF SCHOLARSHIP/CREATIVITY

ERIC J. BICKEL

This assessment was done by Prof. Jonathan Bard, a budget council member in the Department of Mechanical Engineering (ME) at The University of Texas at Austin, and Prof. Larry Lake, a budget council member in the Department of Petroleum and Geosystems Engineering (PGE). Dr. Bard serves as the Chair of the Graduate Studies Committee and Assistant Graduate Advisor for the Operations Research and Industrial Engineering (ORIE) Program within ME, and is personally familiar with many aspects of Dr. Bickel's research, publications, and scholarship. Dr. Bard has been an ME faculty member since 1984. Dr. Lake has been at UT for more than 35 years, having served as PGE departmental chairman twice, currently as the director of the Center for Petroleum Risk Management (through which he is familiar with Dr. Bickel's work). Dr. Lake is a member of the US National Academy of Engineering.

At the highest level, Dr. Bickel's research focuses on decision making in the presence of uncertainty and risk. His research program consists of both methodological research in decision analysis and applied work in environmental and energy systems. Since joining UT in 2008, he has proven to be a creative and respected scholar, researcher, and academician who has gained an international reputation in his field. He has built a well funded and aggressive research program centering on climate change analysis, energy exploration, improved estimation of probability distributions, and risk assessment. The interdisciplinary scope of his work is reflected in his collaborations with colleagues at the University from the LBJ School of Public Affairs, the Bureau of Economic Geology, and the Department of Petroleum and Geosystems Engineering. In addition to his primary appointment in the Graduate Program in Operations Research & Industrial Engineering (within the Department of Mechanical Engineering), he has a courtesy appointment in the Department of Petroleum and Geosystems Engineering.

Publication Record

To highlight Dr. Bickel's major achievements we will start with his archival publications, which number 24 in rank and 6 prior. Virtually every one his papers has appeared in a leading journal in its respective area: *Decision Analysis* is at the top of the list, being one in a handful of journals published by the Institute for Operations Research and the Management Sciences (INFORMS); *Climatic Change* is the foremost journal on the economics, policy, and science of climate change; *Monthly Weather Review* is a well respected journal on meteorology; the *Engineering Economist*, published by the Institute of Industrial Engineers (IIE), is one of their two flagship journals; and *SPE Reservoir Evaluation and Engineering* is a flagship journal of the Society of Petroleum Engineers. In addition, Dr. Bickel has published 6 book chapters and 2 peer-reviewed conference proceedings while at UT. Several examples of his analytic and methodological contributions follow.

Bickel, J. Eric and James E. Smith. 2006. "Optimal Sequential Exploration: A Binary Learning Model." *Decision Analysis* 3(1) 16-32.

Eric and his co-author, Jim Smith (Duke University), addressed a common problem in exploration or search problems: how to efficiently model probabilistic dependence between potential targets and then how to use this information to develop the optimal search strategy. In theory, one simply needs to assess the full joint distribution between targets. In practice, this is very difficult because the data to create such a distribution does not exist or experts may be unable to assess such a complicated probabilistic structure. Eric demonstrated how to use the principle of maximum entropy to select a single probability distribution from the set of all possible distributions that are consistent with the information that is available. As a result, the authors were able to show how to turn an unprofitable oil and gas development into a profitable one. This paper has served as the foundation for several other publications. [41 Google Scholar cites; *Decision Analysis* Impact Factor = 2.143].

Bickel, J. Eric. 2008. "The Relationship Between Perfect and Imperfect Information in a Two-Action Risk-Sensitive Problem." *Decision Analysis* 5(3) 116-128.

Computing the value of perfect information is generally straightforward. However, computing the value of imperfect information can be challenging because it requires difficult assessments regarding information accuracy and, at times, complex Bayesian calculations. In this work, Eric derives a relationship between the values of perfect and imperfect information. He shows that a good approximation for the value of a test with an accuracy of $x\%$ is approximately $x^2\%$ of the value of a perfect test. For example, a test that is 70% accurate is worth about 49%, not 70%, of a test that is 100% accurate. This paper provides important guidance for the use of value of information techniques in practice. [24 Google Scholar cites; *Decision Analysis* Impact Factor = 2.143].

Bickel, J. Eric and Lee Lane. 2010. "Climate Engineering." In: *Smart Solutions for Climate Change: Comparing Costs and Benefits*, pp. 9-51. Bjørn Lomborg (ed.), Cambridge University Press: Cambridge, UK. 436 pages.

Eric and his co-author, Lee Lane, addressed the potential economic benefit of research into climate engineering in response to climate change. This paper was part of the Copenhagen Consensus on Climate Project. The Copenhagen Consensus Center is a world-renowned think tank, directed by Bjørn Lomborg who is quite famous, being named one of the 100 Top Global Thinkers by Foreign Policy. Lomborg asked Eric to participate in this effort -- another testament to the breadth and influence of Eric's work -- though more impressive was the fact that the material in the above referenced paper was ranked first amongst all contributions by a panel of economists that included three Nobel Laureates. Subsequently, the findings were featured in *The New York Times*, *The Financial Times of London*, *The Wall Street Journal*, and in the documentary *Cool It!*. [27 Google Scholar cites]

Bickel, J. Eric, Larry W. Lake and John Lehman, 2011. "Discretization, Simulation, and Swanson's (Inaccurate) Mean," *SPE Economics and Management*, pp. 128-140.

This paper reviews the use of discrete probability distribution functions and their approximations. Such approximations are widely used in many petroleum engineering applications, most prevalently in reserve estimation. The authors show that the commonly used Swanson's mean can accrue significant errors but that simple discretization methods exist that are equivalent to tens of thousands of Monte Carlo realizations. The results imply that analyses that might have taken days can be performed in hours or even minutes.

Bickel, J. Eric and Shubham Agrawal. 2013. "Reconsidering the Economics of Aerosol Geoengineering." *Climatic Change* 119(3) 993-1006.

This paper, which was published in the most prestigious journal focused on the economics, policy, and science of climate change, demonstrates the breadth of Eric's skills. Eric and one of his students corrected an economic analysis of climate engineering that was published by others in this journal. Eric showed that the previous analysis was biased and how a simple reframing of the decision to use climate engineering completely overturned the former results. [8 Google Scholar cites; *Climatic Change* Impact Factor = 3.634].

Research Funding

Since arriving at UT, Dr. Bickel has obtained over \$1.45 million in individual funding out of a total of \$4.3 million from such organizations as the National Science Foundation, the US Department of Energy, BP American, and Sandia National Labs. His career totals are \$1.6 million and \$4.26 million, respectively. This includes \$254,000 in direct funding from various non-peer reviewed grants. This level of outside support places him in at the top of his peer group in ORIE programs at schools like UC Berkeley, Georgia Tech, and the University of Michigan. We are not aware of other junior faculty in the ORIE field at other universities who have matched this record over the last decade.

The balance between individual and collaborative research conducted by Dr. Bickel while at UT is evenly split. Of his 10 grants, 4 fall in the former category, which is the norm for the ORIE field. As a young faculty, he should be commended for making an effort to collaborate with his colleagues. But this was to be expected, given the interdisciplinary nature of his research, and the need to organize in teams to make progress. Rather than being a junior partner, though, Dr. Bickel has taken the lead in proposal writing and project management. This can be seen by noting that he or one of his students is the first author on virtually all of his publications. At UT, he has graduated 2 PhD students with 3 in progress and 13 MS students with 1 in progress. He also graduated 1 PhD student and 12 MS students at Texas A&M University previously. This record is at least on par with his peers and perhaps better when compared to larger programs where it is difficult for junior faculty to attract graduate students.

Invited Presentations

An additional factor attesting to Dr. Bickel's scholarship and growing reputation is the large number of invitations he has received to give talks around the country. In the last 5 years alone, he has given more than 15 lectures and webinars at universities, major oil companies, and various workshops and forums. On a related note, he has been interviewed for several documentaries to discuss climate change and geoengineering issues, and his research has been cited in print media and the popular press, including *The New York Times*, *The Wall Street Journal*, *Time Magazine*, and *The Financial Times* (UK).

Scholarly Activity

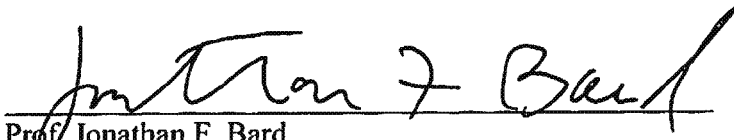
Being in the forefront of decision analysis, Dr. Bickel has assumed an active role in the profession within INFORMS, the Decision Analysis Society (DAS), IIE, IEEE, and several other organizations. In 2012, he was elected Vice President/President Elect of DAS, again a testament to his standing in the community and his reputation amongst his peers. Being a junior faculty, his election was unprecedented. In April 2013, he chaired the Decision Analysis Affinity Group

Annual Conference, the only academic to ever do so due to its practitioner orientation. He also serves as an Associate Editor for *Decision Analysis*, a Topical Editor for *Wiley Encyclopedia of Operations Research and Management Science*, a Technical Editor for *SPE Economics and Management*, and is on the editorial board of two other journals.

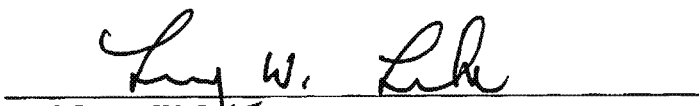
Additional Highlights

A final point that stands out in Eric's background is the seamless blending of his enthusiasm for sports with his technical skills. One of his hobbies is applying analytics to baseball strategy. Since his college days he has poured over statistics, analyzed scenarios (primarily related to baseball), and on occasion published his findings, which he now uses as teaching examples. One paper ([19] on his CV) was mentioned by Atlanta Braves star Evan Gattis in the June 10, 2013, issue of *Sports Illustrated* as shaping his approach to hitting (he refers to Eric by name). INFORMS recently featured Eric and this research in a "Science of Better" podcast.

In summary, Dr. Bickel has set a standard for productivity and research excellence that few junior faculty have equaled. His output far exceeds the norm and his publications are uniformly top rate, appearing in the most prestigious journals in his field. Similar remarks apply to his research funding as well as his eagerness to collaborate with colleagues in engineering, public policy, energy, and the environment. He is a leader, a crucial thinker, and a bridge between academia and practice, flourishing in both worlds, and between disciplines within UT. Without doubt, he brings international recognition and prestige to his associated disciplines and is an unqualified asset to The University of Texas.



Prof. Jonathan F. Bard
Industrial Properties Corporation Fellow in Engineering



Prof. Larry W. Lake
W. A. "Monty" Moncrief Centennial Chair in Petroleum Engineering

Five Most Significant Works

J. Eric Bickel

1. J. Eric and Shubham Agrawal*. 2013. "Reexamining the economics of aerosol geoengineering." *Climatic Change* 119(3) 993-1006. doi: 10.1007/s10584-012-0619-x.
2. Montiel*, Luis V. and J. Eric Bickel. 2013. "Approximating Joint Probability Distributions Given Partial Information." *Decision Analysis* 10(1) 26-41. doi:10.1287/deca.1120.0261.
3. Hammond*, Robert K. and J. Eric Bickel. 2013. "Reexamining Discrete Approximations to Continuous Distributions." *Decision Analysis* 10(1) 6-25. doi: 10.1287/deca.1120.0260.
4. Montiel*, Luis V. and J. Eric Bickel. 2012. "A Simulation-Based Approach to Decision Making with Partial Information." *Decision Analysis* 9(4) 329-347. doi:10.1287/deca.1120.0252.
5. Bickel, J. Eric and Lee Lane. 2010. "Climate Engineering." In: *Smart Solutions for Climate Change: Comparing Costs and Benefits*, pp. 9-51. Bjørn Lomborg (ed.). Cambridge University Press: Cambridge, UK. 436 pages.

Promotion Review
3a – Significant Works

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

CANDIDATE'S FIVE MOST SIGNIFICANT WORKS

I list below what I consider to be my five most significant publications while at the University of Texas. I have selected four archival journal publications and one book chapter, due to its importance and the attention it received. I have numbered the publications according to my CV.

ARCHIVAL JOURNAL PUBLICATIONS (*=STUDENT)

1. Bickel, J. Eric and Shubham Agrawal*. 2013. "Reexamining the economics of aerosol geoengineering." *Climatic Change* 119(3) 993-1006. doi: 10.1007/s10584-012-0619-x.

Climatic Change Impact Factor = 3.634

In this paper, one of my MS students, Mr. Shubham Agrawal, and I critique and redo the analysis of a paper authored by other researchers. In particular, we analyze the economics and risk of one particular family of geoengineering techniques known as solar radiation management (SRM). We show that the previous analysis was biased and that SRM can pass a cost-benefit test using the previous researchers' own model.

Significance: This paper is significant since SRM is a new technology that may be able to play some role in reducing the risk of climate change. The previous authors' work, which looked very convincing, argued that SRM's benefits are an illusion. If true, work on SRM should not, and probably would, not go forward. In fact, their paper is still cited as undermining this technology. We unpack their assumptions and demonstrate how these determined their results, rather than any technical considerations regarding SRM.

7. Montiel*, Luis V. and J. Eric Bickel. 2013. "Approximating Joint Probability Distributions Given Partial Information." *Decision Analysis* 10(1) 26-41. doi:10.1287/deca.1120.0261.

Decision Analysis Impact Factor = 2.143

In this paper, funded by my NSF CAREER grant, my PhD student, Dr. Luis Montiel, and I challenge the long-standing practice of using maximum entropy (ME) to specify probability distributions given partial information (e.g., moments). Further, we introduce a new approximation known as the Analytic Center (AC). We show that AC is more accurate than ME. We then demonstrate how to apply our method to a decision problem I addressed in an earlier paper.

Significance: This paper is significant because ME is a dominant method that has been used since the 1960s. We are the first to (i) quantify its accuracy, (ii) demonstrate that it produces extreme distributions, and (iii) suggest more accurate methods to replace it. This has important theoretic and practical implications.

8. Hammond*, Robert K. and J. Eric Bickel. 2013. "Reexamining Discrete Approximations to Continuous Distributions." *Decision Analysis* 10(1) 6-25. doi: 10.1287/deca.1120.0260.

Decision Analysis Impact Factor = 2.143

In this paper, my PhD student, Mr. Robert Hammond, and I develop new three-point approximations to continuous probability distributions. We then compare our new methods to existing ones using the Pearson distribution system. We show that our new methods are more accurate and, in fact, the best possible if one is restricted to three points.

Promotion Review
3a – Significant Works

J. E. Bickel
Mechanical Engineering (ORIE)

Significance: This paper is significant because we are the first to quantify the accuracy of discrete approximations used by decision analysts and others across a very wide range of probability distributions. Previous analysis, completed in the 1980s, only analyzed the beta distribution, which is bounded above and below. Further, we are the first to develop new three-point approximations tailored to the support of the distribution. These approximation methods are used extensively in industry and our work should help to improve practice.

10. Montiel*, Luis V. and J. Eric Bickel. 2012. "A Simulation-Based Approach to Decision Making with Partial Information." *Decision Analysis* 9(4) 329-347. doi: 10.1287/deca.1120.0252.

Decision Analysis Impact Factor = 2.143

In this paper, funded by my NSF CAREER grant, my PhD student, Dr. Luis Montiel, and I develop a new procedure for making decisions given partial probabilistic information. In particular, we show how to use Monte Carlo simulation to sample from the set of *all* distributions that are consistent with the information we do have. This allows us to value the decision under millions of possible distributions.

Significance: This paper is significant because all prior work either (i) focused on producing a *single* distribution from the set of all possible distributions; by using an approximation method such a maximum entropy, or (ii) used linear programming to search for dominate alternatives. In practice, dominate alternatives rarely exist (or, at least they don't exist in problems that companies are willing to pay decision analysts to help with) and assuming a single distribution from an infinite set is often hard to defend. Our work is the first to show how to simulate the set of all possible distributions.

BOOK CHAPTERS

6. Bickel, J. Eric and Lee Lane. 2010. "Climate Engineering." In: *Smart Solutions for Climate Change: Comparing Costs and Benefits*, pp. 9-51. Bjørn Lomborg (ed.). Cambridge University Press: Cambridge, UK. 436 pages.

In this paper, Mr. Lee Lane and I analyze the potential net benefits of *research* into climate engineering. This work was part of the Copenhagen Consensus on Climate Project. The Copenhagen Consensus Center (CCC) has been named by the University of Pennsylvania as one of the top-10 think tanks in the world. (<http://www.gotothinktank.com/>). The CCC is directed by Bjørn Lomborg, who has been named one of the 100 Top Global Thinkers by Foreign Policy, one of the world's 75 most influential people by Esquire, and one of 50 people who could save the planet by the UK Guardian.

Our paper was peer reviewed by three reviewers, two of whom wrote critiques which appear in the book as well. These reviewers were Dr. Anne Smith (Charles River Associates) and Prof. Roger Pielke, Jr., (University of Colorado-Boulder). Other authors wrote papers on other responses to climate change.

Everyone, including Dr. Smith and Prof. Pielke, presented their research to an expert panel comprised of five economists: Jagdish Bhagwati, Finn Kydland (Nobel Laureate), Thomas Schelling (Nobel Laureate), Vernon Smith (Nobel Laureate), and Nancy Stokey. This panel ranked our ideas first and third out of 15. The results can be found here: <http://fixtheclimate.com/#/component-1/the-result-prioritization/>.

Here is a picture of me, at Georgetown University, presenting our work to the expert panel:

Promotion Review
3a – Significant Works

J. E. Bickel
Mechanical Engineering (ORIE)



Seated around the table is the expert panel (from left to right, running clockwise): Finn Kydland, Thomas Schelling, Vernon Smith, Bjorn Lomborg, Jagdish Bhagwati, and Nancy Stokey.

Significance: This paper is significant because it was ranked so highly by a very esteemed panel. Further, our work was featured in the *New York Times*, the *Wall Street Journal*, the *Financial Times of London*, *Time Magazine*, and several other major media outlets. In addition, this work was featured and both Mr. Lane and I appeared in the documentary *Cool It*. This put me in the Internet Movie Database (<http://www.imdb.me/feriebickel>).

Promotion Review
3b – Research

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

STATEMENT ON RESEARCH, PUBLICATIONS, AND OTHER EVIDENCE OF SCHOLARSHIP AND CREATIVITY

I am passionate about decision making and its power to transform lives and organizations. After obtaining my PhD, but before pursuing my long-term dream of becoming a professor, I decided to spend some time in the lab, which for a decision analyst is the real world of complex, high-stakes, decisions. I joined the premier decision-analysis consulting firm, Strategic Decisions Group (SDG), and consulted around the world in a variety of industries (upstream oil and gas, energy trading and marketing, electric power, financial services, metals and mining, chemicals, life sciences, agriculture, building services, printing and publishing, and packaging). Through this experience, I discovered that the theories that worked so well in the classroom were too cumbersome to be used effectively in actual decision situations. Based on this experience, my goal became to research, discover, and teach new theories, processes, and tools that would make the application of decision analysis more effective.

RESEARCH SUMMARY

I was hired by The University of Texas at Austin (UT) in 2008 as a cluster hire between the Center for International Energy and Environmental Policy (CIEEP) and the Graduate Program in Operations Research / Industrial Engineering (within the Department of Mechanical Engineering). In addition, I hold a courtesy appointment in the Department of Petroleum and Geosystems Engineering. I am also on the Graduate Study Committees of the Energy and Earth Resources Graduate Program and the Division of Statistics and Scientific Computation.

My research is focused on improving decision making under uncertainty. This includes methodological developments in *decision analysis* (70% of my time), as well as applications in *energy exploration & development* (15%) and *energy/climate policy* (15%). As shown in Table 1, I have authored 30 papers (an additional 7 are under review), 19 conference proceedings (2 refereed), 6 book chapters, and 7 technical reports. I am the corresponding author on 29 of my peer-reviewed journal publications. I have been a principal investigator (PI) or Co-PI on almost \$4.3 million in research funding, with my share being \$1.6 million (38%).¹ I have graduated 3 PhD students, with 2 being at UT. My h-index, according to Google Scholar, is 8. I have listed ISI's citation information as well. However, it is important to understand that ISI fails to include several journals that are important in my research area. These include: *The Engineering Economist* and *SPE Economics & Management*. Further, the premier journal in my field, and my primary outlet, *Decision Analysis* (impact factor: 2.143), was not listed in ISI until 2009.

TABLE 1: PUBLICATION & RESEARCH SUMMARY²

| Metric | 2008-2013 | Previous | Total |
|-------------------------------------|--------------|------------|--------------|
| Refereed Journal Publications | 24 | 6 | 30 |
| Refereed Publications under Review | 7 | - | 7 |
| Manuscripts in Preparation | 3 | - | 3 |
| Refereed Conference Proceedings | 2 | 0 | 2 |
| Non-Refereed Conference Proceedings | 8 | 9 | 17 |
| Other Publications | 0 | 2 | 2 |
| Book Chapters | 6 | 0 | 6 |
| Technical Reports | 7 | 0 | 7 |
| Invited Lectures | 14 | 10 | 24 |
| Conference Presentations | 21 | 26 | 47 |
| Documentary Appearances | 1 | 0 | 1 |
| Research Funding | \$ 4,042,636 | \$ 215,000 | \$ 4,257,636 |
| PI-Share of Research Funding | \$ 1,454,336 | \$ 145,000 | \$ 1,599,336 |
| PhD Students Graduated | 2 | 1 | 3 |

| Citation Metrics | Google Scholar | ISI |
|---------------------|----------------|-----|
| Papers Included | 47 | 16 |
| Total Citations | 295 | 31 |
| Citations per Paper | 6.3 | 1.9 |
| h-index | 8 | 3 |
| i10-index | 8 | - |

¹ This includes one grant on which I am Senior Personnel and my share is \$29,526.

² Citation metrics obtained on July 29, 2013.

Promotion Review
3b – Research

J. E. Bickel
Mechanical Engineering (ORIE)

Table 2 summarizes my grant and contract funding. While at UT, I have been a PI or Co-PI on over \$3.8 million in research funding, of which over \$1.2 million (32%) is my share.³ My research funding has come from a diverse set of sources including peer-reviewed funding from the National Science Foundation (6 and 9—including a CAREER award), the Research Partnership to Secure Energy for America (8), the National Energy Technology Laboratory (7), and the Department of Energy (2). Thus far, I have partnered with faculty in the Department of Petroleum and Geosystems Engineering, the Bureau of Economic Geology, the LBJ School of Public Affairs, and the Department of Petroleum Engineering at Texas A&M.

I have also actively sought internal funding opportunities and participated in the support of joint industry projects (JIPs). As shown in Table 3, I have obtained \$229,000 in such funding while at UT. As shown in Table 4, this brings my total funding while at UT to over \$4.0 million, with my share being almost \$1.5 million (36%).

TABLE 2: GRANTS AND CONTRACTS

| # | PI | Co-PI(s) | Title | Sponsor | Peer Review | Grant Period | Amount | J. E. Bickel Share | |
|--------------------|--------------|---------------------------------|--|---|-------------|------------------|-------------|--------------------|-------------|
| | | | | | | | | % | \$ |
| 1 | J. E. Bickel | None | Project 20K: Quantifying System Reliability to Inform Concept Selection | BP America Production Company | No | 6/1/13-8/31/14 | \$186,917 | 100% | \$186,917 |
| 2 | V. Rai | J. E. Bickel (Sr Person) | Towards an Emergent Model of Tech Adoption for Accel the Diffusion of Residential Solar PV | Department of Energy Wells for Improved Recovery (Norway) | Yes | 6/1/13-8/31/16 | \$492,096 | 6% | \$29,526 |
| 3 | J. E. Bickel | None | Real-time Steering Decision during Drilling | | No | 10/15/12-8/31/14 | \$69,325 | 100% | \$69,325 |
| 4 | E. Schneider | J. E. Bickel & D. Morton | Support for Risk-Informed Security Analysis Meth w/ App to Small Modular Reactors | Sandia National Labs | No | 7/1/12-5/31/13 | \$110,000 | 40% | \$44,000 |
| 5 | J. E. Bickel | None | Quantifying the Benefit of CCS Monitoring and Verification Technologies | BP America Production Company | No | 7/18/12-8/31/13 | \$44,560 | 100% | \$44,560 |
| 6 | J. E. Bickel | None | CAREER: Accurate and Efficient Modeling of Probabilistic Dependence | National Science Foundation | Yes | 3/1/10-2/28/15 | \$400,000 | 100% | \$400,000 |
| 7 | I. Duncan | J. Nicot, C. Yang, J. E. Bickel | Developing Comprehensive Risk Assessment Frameworks for Geological Storage of CO2 | Department of Energy—NETL | Yes | 9/1/09-8/31/14 | \$1,996,132 | 7% | \$142,406 |
| 8 | D. McVay | J. E. Bickel | Optimizing Development Strategies to Increase Reserves in Unconventional Gas Reservoirs | to Secure Energy for America (DOE) | Yes | 9/1/08-12/31/11 | \$394,606 | 48% | \$188,602 |
| 9 | J. E. Bickel | None | SGER: Resource Allocation and the Value of Information | National Science Foundation | Yes | 9/1/08-12/31/10 | \$120,000 | 100% | \$120,000 |
| While at UT Austin | | | | | | | Sub-total | 32% | \$1,225,336 |
| 10 | J. E. Bickel | D. McVay, R. Gibson | Quantifying the Value of Seismic Information Phase 2 | Schlumberger | No | 9/1/06-8/31/07 | \$125,000 | 60% | \$75,000 |
| 11 | J. E. Bickel | D. McVay, R. Gibson | Quantifying the Value of Seismic Information | Schlumberger | No | 9/1/05-8/31/06 | \$50,000 | 60% | \$30,000 |
| 12 | J. E. Bickel | None | Copulas and Energy Commodity Pricing | Suez Energy Marketing | No | 1/1/05-5/31/05 | \$15,000 | 100% | \$15,000 |
| Grand Total | | | | | | | \$4,003,636 | 34% | \$1,345,336 |

TABLE 3: INTERNAL AND JOINT INDUSTRY PROJECT FUNDING SOURCES

| # | PI | Co-PI(s) | Title | Sponsor | Peer Review | Period | Amount | J. E. Bickel Share | |
|--------------------|--------------|----------|--|--------------------------------|-------------|----------------|-----------|--------------------|-----------|
| | | | | | | | | % | \$ |
| 13 | J. E. Bickel | None | Applied Projects in OR Project Class | DrillingInfo | No | 1/1/13-5/31/13 | \$10,000 | 100% | \$10,000 |
| 14 | J. E. Bickel | None | Center for Petroleum Asset Risk Management (CPARM) Membership | Weatherford International | No | 9/1/12-8/31/13 | \$50,000 | 100% | \$50,000 |
| 15 | J. E. Bickel | None | Center for Petroleum Asset Risk Management (CPARM) Membership | Kuwait Oil Company | No | 9/1/12-8/31/14 | \$100,000 | 100% | \$100,000 |
| 16 | J. E. Bickel | None | Management Science and Engineering Undergraduate Certificate Program | UT Austin (ME PROCEED Program) | No | 4/1/10-8/31/15 | \$20,000 | 100% | \$20,000 |
| 17 | J. E. Bickel | None | Summer Research Assignment | UT Austin | Yes | 6/1/09-7/31/09 | \$25,000 | 100% | \$25,000 |
| 18 | J. E. Bickel | None | Graduate School Diversity Mentoring Fellowship | UT Austin | Yes | 9/1/09-8/31/10 | \$24,000 | 100% | \$24,000 |
| While at UT Austin | | | | | | | Sub-total | 100% | \$229,000 |
| 19 | J. E. Bickel | None | Pathways to Doctorate Program | Texas A&M | Yes | 9/1/06-8/31/07 | \$25,000 | 100% | \$25,000 |
| Grand Total | | | | | | | \$254,000 | 100% | \$254,000 |

³ In one case (# 2 in Table 2) I am Senior Personnel, where my share is \$29,526. The \$394,606 grant from RPSEA (#8 in Table 2) includes \$80,000 in cost share from Pioneer Natural Resources; my share of \$188,602 includes \$40,000 of this cost share.

Promotion Review
3b – Research

J. E. Bickel
Mechanical Engineering (ORIE)

TABLE 4: SUMMARY OF TOTAL FUNDING

| Total Funding | Amount | J. E. Bickel Share | |
|---------------------------------|--------------------|--------------------|--------------------|
| | | % | \$ |
| Grants and Contracts | \$3,813,636 | 32% | \$1,225,336 |
| Internal Funding and JIPs | \$229,000 | 100% | \$229,000 |
| Total While at UT Austin | \$4,042,636 | 36% | \$1,454,336 |
| Previous Funding | \$215,000 | 67% | \$145,000 |
| Total Funding | \$4,257,636 | 38% | \$1,599,336 |

Given my interdisciplinary role, my research has covered a range of topics. I summarize these below.

DECISION ANALYSIS RESEARCH

My decision analysis research has primarily focused on making decision analysis easier to use in practice. This desire and focus stems from over 17 years of personal experience as a practicing decision analyst.

PROBABILISTIC MODELING

My most recent work, which is the subject of my NSF CAREER award (SES-0954371), is focused upon efficient modeling of probabilistic dependence. Papers⁴ in this area include [7, 10, 12, 39]. Much of my work in this area grew out of an actual application for a major oil and gas company. The method developed on that project became the foundation for two papers [24, 27].

PROBABILITY ASSESSMENT, BIASES, AND SCORING RULES

My probability assessment research has focused on auditing expert assessments and the development of strictly proper scoring rules [16, 25]. In [14, 21], my first PhD student, Seong Dae Kim (now at the University of Alaska-Anchorage), and I audited over 13 million probability-of-precipitation forecasts provided by meteorologists, including those working for The Weather Channel (TWC). This work was highlighted in Nate Silver's book *The Signal and the Noise*.⁵

VALUE OF INFORMATION AND PORTFOLIO DECISION ANALYSIS

My research into value of information and portfolio decision analysis was funded by the NSF (SES-0907794). In [22], I provided one of the first real applications of VOI methods in the oil and gas industry. This work was awarded the 2006 Decision Analysis Practice Award, the only time it has been won by an academic. Since then, I have summarized the use of VOI methods in the oil and gas industry [18], applied VOI to carbon capture and storage [2], and made theoretic contributions [23].

DISCRETIZATION

My discretization research was funded by the Research Partnership to Secure Energy for America (Grant # 07122-35), which is a DOE program. In [11, 15], I quantified the accuracy of popular discrete approximations. My current work, in conjunction with my PhD student Robert Hammond, is focused on quantifying the accuracy of discretization methods in more general settings. We have published a detailed study of discretization accuracy [8] and reconcile many common methods [4, 31].

DECISION ANALYSIS EDUCATION

I have published three papers focused on decision analysis education. In [16], I documented my use of scoring rules to better understand students' knowledge of decision analysis concepts and explained how I use this understanding to better design my course. In [19], I demonstrated how decision analysis can be used to provide insight into an interesting question of sports strategy. This research was credited by Evan Gattis, the Atlanta Braves rookie phenom, for shaping his approach to hitting.⁶

⁴ References are numbered in accordance with their appearance on my CV. [#] is a paper reference, [B#] refers to a book chapter, and [T#] is a technical report.

⁵ Silver, Nate. 2012. *The Signal and the Noise: Why So Many Predictions Fail-but Some Don't*. The Penguin Press. New York, NY. In 2009, Mr. Silver was named one of The World's 100 Most Influential People by Time.

⁶ Lemire, John. "Evan Gattis: The Coolest Story and Nickname in Baseball." *Sports Illustrated*. June 10, 2013, pp. 38-45.

Promotion Review
3b – Research

J. E. Bickel
Mechanical Engineering (ORIE)

Finally, in [28], I detailed a baseball example that I use to teach Markov processes, probability assessment, and decision making.

UTILITY THEORY

In [26], I provided the first normative foundation for corporate risk aversion, which reconciles the views of decision analysis and corporate finance. More recent work [32] has focused on how to model decisions given partial preference information.

ENERGY AND CLIMATE POLICY RESEARCH

My energy/climate policy research has focused on choosing the best policy response in the face of climate change. This work was carried out in conjunction with the Copenhagen Consensus Center (CCC) and the American Enterprise Institute for Public Policy Research (AEI). The CCC was named one of the world's top-10 think tanks by the University of Pennsylvania.

Prof. Bjørn Lomborg⁷ invited me to participate in the 2009 Copenhagen Consensus (CC09). The CC09 investigated alternative responses to climate change. My co-author, Lee Lane, and I wrote a paper [T7] analyzing the potential benefits of *research* into climate engineering. We presented our research to an expert panel consisting of five prominent economists including three Nobel Laureates (Finn Kydland, Thomas Schelling, and Vernon Smith). This panel ranked our two approaches first and third, out of the 15 considered. Our work [B6] appeared in the book *Smart Solutions to Climate Change*.⁸ In addition, our work was prominently featured in the documentary *Cool It*, in which both Lee and I appear.⁹ This work was also featured in the *Wall Street Journal*, the *New York Times*, and other major media outlets.

Since this time, I have investigated the use of climate engineering as a risk management tool [5] and have analyzed the risk that a climate engineering program might be aborted in the future [1].

I was asked by Prof. Lomborg to participate in the 2012 Copenhagen Consensus (CC12). CC12 focused on ways to address all of the world's major problems (climate change, malnutrition, AIDS, corruptions, war, etc.). Our new paper [B1] was reviewed by an expert panel that includes four Nobel Laureates in Economics (Finn Kydland, Robert Mundell, Thomas Schelling, and Vernon Smith). Again, our work was the top-ranked climate-change solution. This paper will appear in the Cambridge University Press book *Global Problems, Smart Solutions*, which will be published in November 2013.

FUTURE RESEARCH DIRECTIONS

I plan to continue my current line of research, building on my past successes and recognized expertise, while also expanding into closely related areas. My current plans are highlighted below.

1. I will continue my current research into the modeling of dependence (subject of my NSF CARRER grant). I plan to apply my work to the modeling of the dependence between counterparties in credit-risk models, climate change, and risk analysis. This last application area will be part of my new grant with British Petroleum (BP) to help assess the reliability of their next generation of offshore exploration and development equipment.
2. I anticipate further research into the risks posed by climate change and to what degree climate engineering may be able to address them. I was among the first individuals to explore this area and continue to be recognized as an expert.
3. I also look forward to expanding my research by further linking it to data analytics, which is growing exponentially at the moment. I have completed preliminary research into the application of analytics to characterize unconventional hydrocarbon reservoirs, which are also experiencing tremendous growth. I believe merging these two areas will produce many funded research opportunities.

⁷ Prof. Lomborg has been named one of the 100 Top Global Thinkers by *Foreign Policy*, one of the world's 75 most influential people by *Esquire*, and one of 50 people who could save the planet by the *UK Guardian*.

⁸ Lomborg, Bjørn (Ed.). 2010. *Smart Solutions to Climate Change: Comparing Costs and Benefits*. Cambridge University Press. Cambridge, UK.

⁹ As far as I know, I am the only decision analyst in the Internet Movie Database (<http://www.imdb.me/jericbickel>).

**BUDGET COUNCIL STATEMENT OF
ACADEMIC ADVISING, COUNSELING AND OTHER
STUDENT SERVICES**

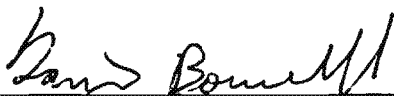
ERIC BICKEL

Dr. Bickel currently supervises three doctoral students and has completed supervision of two others (one at Texas A&M). He is currently supervising or has completed supervision of 14 Masters students while in rank (26 career total). Dr. Bickel's duties include regularly meeting with his students to supervise the research and to address academic and career issues. He actively counsels his graduate students to take internships to gain practical industrial experience and to consider academic careers. He encourages his students to engage in the professional societies and associated conferences, including sessions dealing with careers in academics. This has been successful. Of his three doctoral graduates (one at Texas A&M), one is in a post-doctoral position in his group, one is a statistical analyst at HomeAway, and the third is an assistant professor at the University of Alaska at Anchorage. Dr. Bickel is a graduate recruiter for the Operations Research and Industrial Engineering Program. In this capacity, he interviews and advises dozens of potential graduate students regarding pursuing their graduate programs at Texas.

At the undergraduate level, Dr. Bickel created an undergraduate certificate program in management science and engineering. This entails student participation in undergraduate research experiences with faculty. The activity results in faculty-student interactions at both the technical and mentoring levels. Dr. Bickel serves on the Undergraduate Curriculum Advancement Committee. The primary activity has been analyzing student retention and ways to improve it. Finally, he has interacted positively with students in his courses, which is evidenced by his being routinely asked to write letters of recommendation supporting student job applications.

Dr. Bickel is currently supervising one post-doctoral scholar. In addition to meeting with him regularly to extend his doctoral research, Dr. Bickel is providing the scholar with opportunities to serve in a supervisory role with his doctoral and undergraduate certificate program students. This is valuable preparation for a career in academia.

In conclusion, Dr. Bickel is advising students and scholars at a level commensurate with expectations for promotion to associate professor.



Dr. David Bourell

Professor

Temple Foundation Endowed Professor No. 2

September 3, 2013

Promotion Review
4a – Advising

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

STATEMENT ON ADVISING, COUNSELING AND OTHER STUDENT SERVICES

One of the most rewarding aspects of being a professor is that I am able to spend quality time outside of the classroom with outstanding undergraduate and graduate students. In this setting, the students open up and view me more as a mentor than an instructor. The number and quality of these interactions is difficult to quantify, but I attempt to do so below.

As shown in Table 1, I have supervised or am currently supervising 6 doctoral students (3 completed—2 at UT) and 26 master's students (14 at UT). I have supervised research projects for 4 undergraduate students. Three of these students were part of the Management Science & Engineering certificate program I created in Mechanical Engineering and one student was from the Department of Economics.

TABLE 1: SUMMARY OF ACADEMIC ADVISING

| Metric | 2008-2013 | Previous | Total |
|--|-----------|----------|-------|
| PhD Students Completed | 2 | 1 | 3 |
| PhD Students in Pipeline (as of 09/2013) | 3 | - | 3 |
| MS Students Completed | 13 | 12 | 25 |
| MS Students in Pipeline (as of 09/2013) | 1 | - | 1 |
| Undergraduates Supervised | 4 | 0 | 4 |

RESEARCH ADVISING

My doctoral supervisions are given in Table 2, and my master's supervisions are given in Table 3. My first PhD student is now an assistant professor at The University of Alaska, Anchorage. My second PhD student (first at UT), Luis Montiel, is currently working as a Research Fellow in my research group and is also a Lecturer in ORIE (teaching ME 353, Fall 2013 and Spring 2014). In addition to these supervisions, I have served or am serving on the committees of 8 master's students and 12 doctoral students. This includes PhD students in IROM (McCombs), CAEE, ME, and LBJ. In addition, I am serving or have served as a reader for 2 master's students and 2 doctoral students from The University of Stavanger (Norway).

TABLE 2: DOCTORAL SUPERVISIONS

| # | Student | Degree Program | Graduation Date | Dissertation Title | Current Position |
|---|----------------|----------------|-----------------|--|-------------------------------------|
| 1 | Seong Dae Kim | IE (TX A&M) | Spring 09 | Roads or Radar: The Tradeoff between Investments in Infrastructure and Forecasting in the Face of Hurricane Risk | Assistant Professor, U. of Alaska, |
| 2 | Luis Montiel | ORIE | Spring 12 | Approximations, Simulation, and Accuracy of Multivariate Discrete Probability Distributions in Decision Analysis | Research Fellow and Lecturer at UT |
| 3 | Kun Zan | ORIE | Summer 13 | Value of Information and Portfolio Decision Analysis | Statistical Analyst, HomeAway |
| 4 | Robert Hammond | ORIE | Est: Spring 14 | The Accuracy of Discretizations in Decision Analysis | PhD Student (and intern at Chevron) |
| 5 | Tao Huang | ORIE | Est: Spring 15 | Optimal Assessment Protocols in Decision Analysis | PhD Student |
| 6 | Chris Hadlock | ORIE | Est: Spring 15 | System Reliability with Partial Information | PhD Student |

Promotion Review
4a – Advising

J. E. Bickel
Mechanical Engineering (ORIE)

TABLE 3: MASTER'S SUPERVISIONS

| # | Student | Degree Program | Graduation Date | Thesis/Report Title |
|----|-------------------------------|----------------|-----------------|--|
| 1 | Vijo V. Theeyattuparampil | ORIE | Spring 09 | Analysis of Geoengineering Strategies |
| 2 | Paul R. Rebeiz | ORIE | Spring 09 | Capital Expansion Program under Price Capping Regulation |
| 3 | Angel Baca | EER | Fall 09 | Carbon Capture and Storage Potential Contribution to Mitigate Climate Change |
| 4 | Shubham Agrawal | ORIE | Fall 09 | The Risk of Ending a Solar Radiation Management Program Abruptly |
| 5 | Jennifer M. Mozano | ORIE | Spring 10 | Deciding among Models: A Decision-Theoretic View of Model Complexity |
| 6 | Arjun Ramakrishnan | ORIE | Spring 10 | Value of Information and the Accuracy of Discrete Approximations |
| 7 | Hong Chul Ki (Co-Supervision) | EER | Fall 10 | Vertical Integration and Diversification Perspectives on Entry Decisions: Analysis of a Refiner's Decision to Enter the Market |
| 8 | Robert Hammond | ORIE | Summer 11 | Decision Impact of Stochastic Price Models in the Petroleum Industry |
| 9 | Kyle Schelee | ORIE | Summer 11 | Wind Forecast Verification: A Study in the Accuracy of Wind Forecasts Made by The Weather Channel and AccuWeather |
| 10 | David Tyler Wymond | EER | Spring 11 | The U.S. Small Hydropower Industry: Opportunities for Development and Barriers to Success |
| 11 | Shbham Agrawal | EER | Summer 11 | Decision Analysis and Risk Management: Application of Climate Change and Risk Detection |
| 12 | Carlos Puerta Ortega | EER | Spring 12 | A Value of Information Analysis of Permeability Data for Storage Capacity in a Carbon, Capture and Storage Project |
| 13 | Dohyun Jo | EER | Spring 12 | A Decision Analysis of an Oil Company's Retail Strategy in the Face of Electric Vehicle Penetration Uncertainty |

GRADUATE ADVISING

At the graduate level, there are always three to four students per year who are excited by decision analysis and want to devote either their careers in academia or industry to helping people make better decisions. It may sound somewhat clichéd, but these students feel that decision analysis fundamentally changed the way they think and the direction of their lives, which is how I felt about decision analysis when I was a graduate student.

These students often seek internships so they may better understand the challenges that real decision makers face in practice. Towards this end, I helped my PhD student, Kun Zan obtain an internship at the US Army R&D Center. I helped another Operations Research and Industrial Engineering (ORIE) student, Luis Mendoza, obtain an internship at Decision Frameworks in Houston. Recently, Chevron has agreed to hire one of my students each summer as an intern in their Decision Analysis Group. Over the summer of 2013, Robert Hammond is working at Chevron in Houston.

I also started a monthly working group that I call the Decision Analysis Working Group (DAWG). DAWG is open to anyone interested in decision making. Faculty from ORIE and the McCombs School of Business regularly attend. Meetings are informal and generally involve a graduate student presenting research ideas and results. This is followed by a group discussion. Other times, we simply discuss what is required to become a professor or secure a job in industry. These meetings also establish peer-to-peer mentoring between students.

I have actively developed outside mentoring activities for my graduate students. For example, all my PhD students have attended the "Future Academician Colloquia" at the annual INFORMS (Institute for Operations Research and the Management Sciences) conference, which required that I nominate them to attend. In April 2013, I chaired the annual Decision Analysis Affinity Group (DAAG) annual meeting, which was held in Austin. In the past, students were not encouraged to attend DAAG. However, this year I arranged for four students to attend (two were my PhD students and two were students of Prof. Reidar

Promotion Review
4a – Advising

J. E. Bickel
Mechanical Engineering (ORIE)

Bratvold, with whom I collaborate). I also arranged for a special “Student and Young Professional” mentoring session as part of the official program.

During the Spring 2013 semester, I advised a team of students who were working on a project for the ORIE Applied Projects in Operations Research & Industrial Engineering (A PRIORI) course. The project was sponsored by DrillingInfo, the largest provider of well information in North America. The team developed new data-analytic procedures to forecast production in unconventional hydrocarbon basins.

Finally, in my role as ORIE Graduate Recruiter, I spend a significant amount of time recruiting and advising potential students, personally speaking with dozens of students every year. I seek to understand their career goals (academia or industry), their interests (research or applications), and their strengths. Based on this, I do my best to help them choose the most appropriate graduate program.

UNDERGRADUATE ADVISING

I am a member of the Undergraduate Curriculum Advancement Committee (UCAC) in Mechanical Engineering (ME). Over the last year, the UCAC has been focused intensely on improving retention of ME students. This has included a redesign of the ME curriculum and data analysis to understand which students leave ME and why.

I have presented my research applying decision analysis to baseball strategy at Explore UT. These sessions were designed to pique the interest of high school students in the Cockrell School of Engineering in general and ME in particular. The reaction has been quite positive with many students (and a few parents) expressing amazement that mathematics coupled with engineering thinking can be used to improve baseball strategy. I hope this has translated to an increase in applications, but this is, of course, difficult to measure.

As mentioned in my “Statement on Teaching,” as part of my NSF CAREER award, I created a new ME Certificate program entitled “Management Science & Engineering” (MS&E). As part of this program, students undertake an individual research project with an ORIE faculty member. Thus far, I have advised three outstanding ME undergraduate students. This has been a real joy, as these students are very well prepared and motivated. They have undertaken research in medical decision making (cancer), risk management, and decision making in football. I meet weekly with these students, just as I do my graduate students. During these meetings I focus on their research progress, but also seek to be available as a mentor. I know these conversations have played an important role in shaping these student’s post-graduate plans.

I have also written many letters of recommendation for undergraduate ME students. This may be surprising given that students may not see me as a core ME instructor, since ORIE does not have an undergraduate program. However, my undergraduate degree is in mechanical engineering and because of this, I can relate to the students and they know that I understand the coursework they have taken and the career paths they are considering. One student, in particular, stands out. His name is Rush McNair. Rush took my Engineering Finance course (ME 353). While he did quite well in that course, his passion was product design in general and automobile design in particular. He came to talk with me about his career choices and his interest in design. I shared with him my passion for graphic design and the work of Edward Tufte. Rush had not heard of Tufte, so I gave him a copy of *Visual Explanations*, which he really enjoyed. A few months later Rush asked me if I would write him a reference for a design engineer position at Tesla Motors. Of course I agreed, and Rush was hired!

POSTDOCTORAL ADVISING

I have one postdoctoral student, Dr. Luis Montiel. I was Dr. Montiel’s dissertation advisor, and under my guidance, he produced three publications. Dr. Montiel wants to obtain an academic position, but was unable to find one last year. I hired him so that we could follow up on extensions to his work while he continues searching for a position. Dr. Montiel and I meet regularly. I have involved him in the advising

Promotion Review
4a – Advising

J. E. Bickel
Mechanical Engineering (ORIE)

of my other PhD students and undergraduate students within the MS&E certificate program. He has recently been hired as a Lecturer and will teach ME 353 in Fall 2013 and Spring 2014.

Promotion Review
4b – Lists

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

PHD STUDENTS AND PLACEMENT

| # | Student | Degree Program | Graduation Date | Dissertation Title | Current Position |
|---|----------------|----------------|-----------------|--|-------------------------------------|
| 1 | Seong Dae Kim | IE (TX A&M) | Spring 09 | Roads or Radar: The Tradeoff between Investments in Infrastructure and Forecasting in the Face of Hurricane Risk | Assistant Professor, U. of Alaska, |
| 2 | Luis Montiel | ORIE | Spring 12 | Approximations, Simulation, and Accuracy of Multivariate Discrete Probability Distributions in Decision Analysis | Research Fellow and Lecturer at UT |
| 3 | Kun Zan | ORIE | Summer 13 | Value of Information and Portfolio Decision Analysis | Statistical Analyst, HomeAway |
| 4 | Robert Hammond | ORIE | Est: Spring 14 | The Accuracy of Discretizations in Decision Analysis | PhD Student (and intern at Chevron) |
| 5 | Tao Huang | ORIE | Est: Spring 15 | Optimal Assessment Protocols in Decision Analysis | PhD Student |
| 6 | Chris Hadlock | ORIE | Est: Spring 15 | System Reliability with Partial Information | PhD Student |

**BUDGET COUNCIL STATEMENT OF
SERVICE TO THE UNIVERSITY AND TO THE NATION,
STATE AND COMMUNITY**

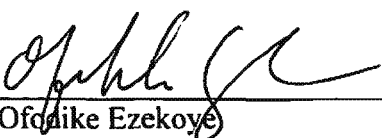
ERIC BICKEL

During his time as an assistant professor Dr. Eric Bickel has actively served on professional, departmental, and Cockrell School of Engineering committees. His service record is exceptional for a newly tenured faculty member. Bickel has been extremely active in international professional society and journal editorial board and reviewer roles. His level of participation in his professional society and organizations is very unusual for an Assistant Professor. He has served as an associate editor and on the editorial board of Decision Analysis, the Institute for Operations Research and Management Sciences (INFORMS) journal on decision analysis research. He has also served on the editorial board for the Springer journal EURO Journal of Decision Processes (EJDP). He has held several elected positions within the Decision Analysis Society (DAS) of INFORM. His service to the DAS of INFORM has resulted in his election as President-Elect of the 1200 member society. It is very unusual for an assistant professor to receive this level of service recognition by a well-established professional/technical organization. His election indicates that his professional colleagues recognize and acknowledge his leadership and contributions to their society.

At the Departmental level, Dr. Bickel has served the department as a member of the graduate student recruiting committee. While I served as departmental graduate adviser, Bickel was the primary recruiter for the Operations Research and Industrial Engineering Area. In that role, he was responsible for evaluating the suitability of applicants for graduate work in the Area. He was also tasked with determining the total number of applicants that should be accepted for the slots available in OR/IE. Bickel contributed his time and energy to the success that we had as a department in graduate student recruiting. Also at the departmental level, Bickel has contributed as a member of the Undergraduate Curriculum Advancement Committee. This committee was charged with reviewing the undergraduate curriculum to identify opportunities to improve the curriculum.

At the Cockrell School of Engineering level, Bickel has served as a member of two strategic thrust committees. He served on the Space and Earth Engineering Strategic Thrust Committee and on the Sustainable Energy Strategic Thrust Committee. His experiences and perspective from strategic consulting to industry were probably very useful to these committees.

Overall, Dr. Eric Bickel has far exceeded the service load of an average newly tenured faculty member. His contributions to his professional society, our department, and the CSE have been exceptional.



Dr. Ofoadike Ezekoye
Professor
Werner W. Dornberger Centennial Teaching Fellow in Engineering

Promotion Review
5a – Service

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

STATEMENT ON SERVICE TO THE UNIVERSITY, THE NATION, STATE, AND COMMUNITY

Thus far, my service has been focused in the following areas: Editorial Service, Service to Professional Societies, Advisory/Review Panels and Boards of Directors, and University Service. I discuss each of these below.

EDITORIAL SERVICE

My editorial service consists of editorial board memberships, associate editor positions, and manuscript reviews. Each of these is discussed below.

EDITORIAL BOARDS

I am a member of the editorial board for *Decision Analysis (DA)* and the *EURO Journal of Decision Processes (EJDP)*. *DA* is published by the Institute for Operations Research and the Management Sciences (INFORMS) and is the premier journal focused solely on decision analysis research and applications (impact factor: 2.143). *EJDP* is a new journal published by Springer.

ASSOCIATE EDITOR POSITIONS

I am an associate editor at *DA* and a topical editor for decision analysis at the *Wiley Encyclopedia of Operations Research and Management Sciences*. In addition, I am technical editor for *SPE (Society of Petroleum Engineers) Economics & Management*, for which I was recently named an Outstanding Technical Editor.

MANUSCRIPT REVIEWS

Since 2008, I have reviewed 70 manuscripts spanning a wide range of journal and professional societies. A summary is provided in Table 1:

TABLE 1: MANUSCRIPT REVIEWS SINCE 2008

| Journal | Reviews | Academic Area | Reviews |
|--|-----------|------------------------|-----------|
| <i>Decision Analysis</i> | 30 | Operations Research | 44 |
| <i>SPE Economics & Management</i> | 10 | Petroleum Engineering | 15 |
| <i>Management Science</i> | 5 | Economics | 4 |
| <i>The Engineering Economist</i> | 3 | Climate Change | 4 |
| <i>Energy Exploration & Exploitation</i> | 3 | Psychology | 2 |
| <i>Wiley Encyclopedia of Operations Research</i> | 3 | Mechanical Engineering | 1 |
| <i>AAPG Bulletin</i> | 2 | Total | 70 |
| <i>Computers and Industrial Engineering</i> | 1 | | |
| <i>Operations Research</i> | 1 | | |
| <i>ASME Fuel Cell Conference</i> | 1 | | |
| <i>Cognitive Science</i> | 1 | | |
| <i>Economics Letters</i> | 1 | | |
| <i>Environment, Development & Sustainability</i> | 1 | | |
| <i>Environment, Systems & Decisions</i> | 1 | | |
| <i>EURO Journal on Decision Processes</i> | 1 | | |
| <i>INFORMS Transactions on Education</i> | 1 | | |
| <i>INTERFACES</i> | 1 | | |
| <i>Nature Climate Change</i> | 1 | | |
| <i>Psychological Methods</i> | 1 | | |
| <i>Risk Analysis</i> | 1 | | |
| <i>Weather, Climate & Society</i> | 1 | | |
| Total | 70 | | |

Promotion Review
5a – Service

J. E. Bickel
Mechanical Engineering (ORIE)

SERVICE TO PROFESSIONAL SOCIETIES

As detailed below, my service to professional societies has focused on elected offices, committee memberships, and conference organization for INFORMS, DAAG, and the SPE.

ELECTED OFFICES

Prior to 2012, I held two elective offices. First, I was elected as a Council Member for INFORMS *Decision Analysis Society* (DAS). Second, I was elected as the Vice Chair of Programs for the INFORMS section on *OR in Sports* (SpORts). In 2012, I was elected Vice President / President-Elect of the DAS. The DAS is the second largest society (1200 members) of the Institute for Operations Research and the Management Sciences (INFORMS), which has over 10,000 members. DAS elections are highly competitive. I ran against a tenured professor at The University of Illinois at Urbana-Champaign and am the first assistant professor elected to this position. I will serve as Vice President until October 2014, President from October 2014 – October 2016, and Past-President from October 2016 – October 2018.

COMMITTEES

I have served on DAS committees in the following capacities: Chair of the DAS Practice Award, member of the Membership Committee, member of the Publication Award Committee, and member of the Nominating Committee. I am currently serving as the DAS representative on the INFORMS Subdivisions Council and am also a member of the Sections/Societies subcommittee.

CONFERENCE ORGANIZATION

I have served as a cluster/track chair seven times. A summary is provided in Table 2. In addition, I have organized 11 sessions in INFORMS conferences and 1 SPE session.

TABLE 2: CLUSTER CHAIR AND/OR MEMBERSHIP COMMITTEES

| Year | Conference | Position |
|------------------|--|----------------------------|
| 2009, 2010 | INFORMS Annual Conference, SpORts Track | Cluster Chair |
| 2007, 2008, 2009 | SPE Annual Conference, Management Track | Selection Committee Member |
| 2008 | INFORMS Regional Conference, Decision Analysis Track | Cluster Chair |
| 2005 | INFORMS Annual Conference, Decision Analysis Track | Cluster Chair |

In 2013, I chaired the Decision Analysis Affinity Group (DAAG) Annual Conference, which was held in Austin, Texas. DAAG consists of about 200 members, most of whom are practitioners. A few academics are invited to attend. I am the first academic ever asked to chair DAAG.

ADVISORY/REVIEW PANELS AND BOARDS OF DIRECTORS

In 2011, I was elected to a one-year term on the Board of Directors for the *Society of Decision Professionals*. In this role, I worked to improve the linkage between decision analysis theory and practice. I also serve or have served on three advisory committees related to energy:

1. I am the Co-Chair of RPSEA's (Research Partnership to Secure Energy for America) *Ultra-Deepwater Environmental, Safety & Regulatory & Metocean Technical Advisory Committee*. RPSEA is a research program administered by the Department of Energy's National Energy Technology Laboratory.
2. I am a member of the *Mizzou Advantage Sustainable Energy Initiative Advisory Board* at the University of Missouri.
3. I was on the Advisory Council for the *Quantification and Management of Risk in Exploration and Production, International Research Institute of Stavanger* (Norway).

Promotion Review
5a – Service

J. E. Bickel
Mechanical Engineering (ORIE)

UNIVERSITY SERVICE

At The University of Texas at Austin, I have held the following committee positions:

1. Graduate Recruiter, Operations Research and Industrial Engineering, Department of Mechanical Engineering.
2. Member, Mechanical Engineering, *Graduate Student Recruiting Committee*.
3. Member, Mechanical Engineering, *Undergraduate Curriculum Advancement Committee*.
4. Member, Mechanical Engineering, *Laptop Committee*.
5. Department of Mechanical Engineering, *Clean Energy Committee*.
6. Member, Cockrell School of Engineering, *Space and Earth Engineering Strategic Thrust Committee*.
7. Member, Cockrell School of Engineering, *Sustainable Energy Strategic Thrust Committee*.

SERVICE TO STATE

On September 22, 2009, I spoke at the Texas Capitol as part of the Texas Climate-Change Legislative Summit. I appeared at the request of Public Utility Commissioner Barry Smitherman. I discussed how climate engineering might be able to address anthropogenic global warming.

**BUDGET COUNCIL STATEMENT OF
HONORS AND OTHER EVIDENCE OF MERIT OR RECOGNITION,
INCLUDING CONTRACTS & GRANTS**

ERIC BICKEL

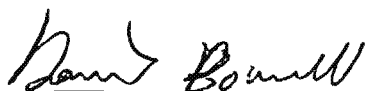
Dr. Bickel has been successful in obtaining external funding to advance his research. He has obtained seven grants from federal, national lab and industrial sources. Most of his funding is federal, coming from the National Science Foundation and the Department of Energy. He has received a CAREER grant from the National Science Foundation. The source of funding, its distribution and the competitive nature of most is quite impressive.

Dr. Bickel has given 36 presentations in rank, 15 of which were invited. These include presentations at conferences as well as industrial and academic settings, including presentations at federal meetings in Washington.

Considering professional society activity, Dr. Bickel has been recognized by his peers in several ways. He is serving on the INFORMS Sections/Society Committee and Subdivisions Council. He was elected Vice President of the 1200-member Decision Analysis Society and will rotate to the President in the officer cycle. Dr. Bickel sits on the Board of Directors of the Society of Decision Professionals. He was recognized by being elected to chair the Practice Award Committee of the Decision Analysis Society. Prior to coming to The University of Texas, he chaired the Membership Committee of that society.

In addition to the recognition by professional societies, Dr. Bickel has received the 2011 Society of Petroleum Engineers Outstanding Technical Editor award. This award, based on performance, recognizes outstanding service to the society in the performance of editorial duties. He has also been elected Fellow of the Society of Decision Professionals. This award, also based on accomplishment, is the highest level of membership and is based on accumulation of experience and serving as a role model.

Dr. Bickel won an NSF CAREER Grant in 2010. Based on both accomplishment and promise, this recognition both demonstrates Dr. Bickel's ability to successfully win an extremely competitive national grant and recognizes his potential to become an outstanding researcher.



Dr. David Bourell

Professor

Temple Foundation Endowed Professor No. 2

September 3, 2013

Promotion Review
6a – Honors

J. E. Bickel
Mechanical Engineering (ORIE)

JAMES ERIC BICKEL

STATEMENT ON HONORS AND OTHER EVIDENCE OF MERIT OR RECOGNITION, INCLUDING GRANTS & CONTRACTS

My research goal is to discover and teach new theories, processes, and tools that make the application of decision analysis more effective. Thus, I am highly motivated by applications and a desire to improve the decision making of real people and organizations. This focus has helped me obtain a mixture of theoretic and applied research funding from federal sources and private corporations. My peers have recognized this work by electing me as president of our professional society (the first assistant professor ever elected to this position), honoring me as the first academic to receive the Decision Analysis Society Practice Award, and asking me to be the first academic to chair an annual conference of practitioners.

RESEARCH FUNDING

As shown in Table 1, including funding prior to UT, I have been PI or co-PI on \$4,042,636 in research funding. My share has been \$1,454,366 (36%). A detailed breakdown of this funding appears in my Statement on Research. Here, I provide further detail, which helps to quantify the selectivity of my research program and assess its potential sustainability. Table 2 provides several summary statistics regarding my funding:

- About 60% of my funding (\$954,534) is from highly competitive peer-reviewed sources, including an NSF CAREER award. The remaining 40% (\$644,802) has primarily come from major corporations in the oil and gas industry or oil and gas research consortiums.
- My research funding features a mix of sole-PI grants focused on methodological improvements in decision analysis and interdisciplinary work seeking to bring decision-analytic concepts and methodologies to new areas. Specifically, I am sole PI on 68% (\$1,089,802) of my funding, while 32% stems from joint contracts. However, when considering the total funding in which I have been involved, 74% (\$3,167,834) is joint-PI research. This demonstrates my approach to funding thus far: I have concentrated on bringing in sole-PI research focused on decision-analytic and operations research methodologies, while working with the colleagues in other departments on large grants. Thus far, I have partnered with faculty in the Department of Petroleum and Geosystems Engineering at UT, the Bureau of Economic Geology at UT, the LBJ School of Public Affairs, and the Department of Petroleum Engineering at Texas A&M.
- My funding portfolio is diverse, with about 58% (\$924,534) coming from federal sources and 32% (\$511,477) coming from private sources. The remaining 10% is almost evenly split between state and international sources.

TABLE 1: SUMMARY OF TOTAL FUNDING

| Total Funding | Amount | J. E. Bickel Share | |
|---------------------------|-------------|--------------------|-------------|
| | | % | \$ |
| Grants and Contracts | \$3,813,636 | 32% | \$1,225,336 |
| Internal Funding and JIPs | \$229,000 | 100% | \$229,000 |
| Total While at UT Austin | \$4,042,636 | 36% | \$1,454,336 |
| Previous Funding | \$215,000 | 67% | \$145,000 |
| Total Funding | \$4,257,636 | 38% | \$1,599,336 |

Promotion Review
6a – Honors

J. E. Bickel
Mechanical Engineering (ORIE)

TABLE 2: FUNDING SUMMARY STATISTICS

| Funding Selectivity | # | All PIs | | J. E. Bickel | |
|---------------------|----|-------------|------|--------------|------|
| Peer Reviewed | 8 | \$3,476,834 | 82% | \$954,534 | 60% |
| Non-Peer Reviewed | 11 | \$780,802 | 18% | \$644,802 | 40% |
| Total | 19 | \$4,257,636 | 100% | \$1,599,336 | 100% |

| Interdisciplinary Funding | # | All PIs | | J. E. Bickel | |
|---------------------------|----|-------------|------|--------------|------|
| Sole PI | 13 | \$1,089,802 | 26% | \$1,089,802 | 68% |
| co-PI | 6 | \$3,167,834 | 74% | \$509,534 | 32% |
| Total | 19 | \$4,257,636 | 100% | \$1,599,336 | 100% |

| Funding Source | # | All PIs | | J. E. Bickel | |
|----------------|----|-------------|------|--------------|------|
| Federal | 6 | \$3,512,834 | 83% | \$924,534 | 58% |
| State | 4 | \$94,000 | 2% | \$94,000 | 6% |
| Private | 8 | \$581,477 | 14% | \$511,477 | 32% |
| International | 1 | \$69,325 | 2% | \$69,325 | 4% |
| Total | 19 | \$4,257,636 | 100% | \$1,599,336 | 100% |

I continue to actively seek research funding. As shown in Table 3, I am PI or Co-PI on \$1,174,744 of research funding that is currently under review. My share is \$512,463 (44%). The Research Partnership to Secure Energy for America Grant includes \$218,000 in cost share provided by DrillingInfo, an Austin-based company.

TABLE 3: FUNDING REQUESTS UNDER REVIEW

| TABLE 3. FUNDING REQUESTS UNDER REVIEW | | | | | | | | J. E. Bickel Share | |
|--|---------|--|---|-----------------------------|----------------|----------------|-------------|--------------------|-----------|
| # | PI | Co-PI(s) | Title | Sponsor | Peer Review | Period | Amount | % | \$ |
| 1 | M. Wahn | S. Begg, R. Bratvold, J. E. Bickel | Improving experts' assessments of low-frequency, high-impact events | Australian Research Council | Yes | 9/1/13-8/31/16 | \$381,846 | 20% | \$76,369 |
| | | Using Basin-Scale Data-Analytics to Improve Production and Reduce Environmental Impacts in Unconventional Resource Plays | Research Partnership to Secure Energy for America (DOE) | Yes | 9/1/13-8/31/15 | \$792,898 | 55% | \$436,094 | |
| Total | | | | | | | \$1,174,744 | 44% | \$512,463 |

HONORS AND MERITS OF RECOGNITION

My most significant recognition by my peers was my election as Vice President / President-Elect of the Decision Analysis Society (DAS) in 2012. The DAS is the second largest society (1200 members) of the Institute for Operations Research and the Management Sciences (INFORMS), which has over 10,000 members. The DAS elections are highly competitive and I ran against a tenured professor at The University of Illinois at Urbana-Champaign. I am the first assistant professor elected to this position and will serve as Vice President until October 2014, President from October 2014 – October 2016, and Past-President from October 2016 – October 2018.

In terms of research, my most significant recognition of merit was being awarded an NSF CAREER award in 2010 by the Civil, Mechanical, and Manufacturing Innovation (CMMI) organization. This grant has funded my research into the modeling of probabilistic dependence.

In 2011, I was elected a Fellow of the Society of Decision Professionals (SDP). The SDP “supports decision professionals to become the trusted advisors of choice for decision makers facing important and complex decisions.”

I was named an Outstanding Technical Editor by the Society of Petroleum Engineering (SPE) in 2011. This is further evidence of my interdisciplinary capabilities: I am not a petroleum engineer, but review their publications and have published extensively in SPE journals.

Promotion Review
6a – Honors

J. E. Bickel
Mechanical Engineering (ORIE)

Finally, one of the awards of which I am most proud is the 2006 Decision Analysis Practice Award. This award is given annually to the best application of decision analysis as judged by a panel of experts from the Decision Analysis Society. This award was given to me and to two of my colleagues at Texas A&M for our work with Schlumberger to quantify the value of seismic information. This was the first time this award had been won by an academic and was an acknowledgement of my efforts to bridge theory and practice. Receiving this honor has given me a special status among practitioners, which has helped me obtain private research funding. It also led to my selection as the Chair of the 2013 Decision Analysis Affinity Group's annual conference, which was held in Austin. Attendees to the conference are primarily practitioners and I am the only academic ever asked to chair this event.

OTHER EVIDENCE OF RECOGNITION

My research into climate change and climate engineering has received a great deal of press. My work has been selected twice by a panel of esteemed economists, including four Nobel Laureates, as the best approach to climate change. This work was then featured in the *New York Times*, the *Wall Street Journal*, the *Financial Times*, *Slate*, *Time*, and many others. My work was also featured in the documentary *Cool It*, and I make a brief appearance in this film. This placed me in the Internet Movie Database (<http://www.imdb.me/jericbickel>). I participated in these efforts at the request of Prof. Bjorn Lomborg. Prof. Lomborg has been named one of the 100 Top Global Thinkers by *Foreign Policy*, one of the world's 75 most influential people by *Esquire*, and one of 50 people who could save the planet by the *UK Guardian*.

My study of probabilistic weather forecasting accuracy was featured by Nate Silver in his book *Signal and the noise: Why so many predictions fail—but some don't*. In 2009, Mr. Silver was named one of The World's 100 Most Influential People by *Time*. In this book, he discusses my work on calibration of weather forecasts.

One of my hobbies is applying operations research and decision analysis to baseball strategy. This work has received some attention over the years. For example, a software product I invented during graduate school was eventually used by 30% of Division I college baseball teams and ESPN. In June 2013, *Sports Illustrated* published a profile of Atlanta Braves phenom, and catcher, Evan Gattis. Mr. Gattis was the National League's Rookie of the Month for April and May of 2013. In this article, Mr. Gattis credits my research with shaping his approach to hitting.

Chart of External Reviewers

Eric Bickel

Mechanical Engineering

| Name | Title | Institution | Chosen By Candidate/BC | Date Received | Reason for Declination |
|-------------------|---|---------------------------------|---------------------------|------------------|------------------------|
| RECEIVED | | | | | |
| Barton, Russell | Professor, Industrial and Manufacturing Engineering, College of Engineering Professor, Supply Chain and Information Systems, Smeal College of Business | Pennsylvania State University | BC | 7/22/13 | |
| | Prof. Barton was Program Director for Manufacturing Enterprise Systems and Service Enterprise Systems at the National Science Foundation, 2010-2012. He is an expert in simulation, optimization, and statistics, and is well qualified to assess Dr. Bickel's contributions to decision making under partial information, modeling of probabilistic dependence, and simulation. | | | | |
| Bier, Vicki | Professor and Chair, Department of Industrial & Systems Engineering | University of Wisconsin-Madison | BC | 7/1/13 | |
| | Prof. Bier is Director of the Center for Human Performance and Risk Analysis. She is a Fellow of the Society of Risk Analysis and is Past-President of the Decision Analysis Society. Prof. Bier is a well-known expert in decision and risk analysis, game theory, probability assessment, and the modeling of probabilistic dependence. She is well qualified to assess Dr. Bickel's research contributions to: decision making with partial information, modeling of probabilistic dependence, and simulation. She can also comment on Dr. Bickel's service to the Decision Analysis Society and his election as that society's President-Elect. | | | | |
| Bodily, Samuel E. | Chaired Professor, Darden School of Business | University of Virginia | Candidate | 7/2/13 | |
| | Prof. Bodily is the John Tyler Professor of Business Administration and the Area Coordinator for Quantitative Analysis. Prof. Bodily is an expert in the general area of decision analysis, strategy, forecasting, and the discretization of continuous uncertainties. He is well qualified to comment on Dr. Bickel's work in discretization, utility theory, decision making under uncertainty, and applications to business and climate policy. | | | | |
| Ensor, Kathy | Professor and Chair, Department of Statistics, School of Engineering | Rice University | Candidate | 8/31/13 | |
| | Prof. Ensor is the Chair of the Department of Statistics at Rice University, which is located within the George R. Brown School of Engineering. In addition, she directs the Center for Computational Finance and Economic Systems. Prof. Ensor is a Fellow of the ASA and the AAAS. Prof. Ensor is an expert in stochastic simulation, time series analysis, and the analysis of dependent data, as it relates to environmental statistics and financial statistics. She is well qualified to assess Dr. Bickel's research in the area of probabilistic dependence, simulation, and decision making under uncertainty. | | | | |
| Henderson, Shane | Professor, School of Operations Research and Information Engineering | Cornell University | BC | 5/23/13 | |
| | Prof. Henderson is a professor and Past-Interim Director of the School of Operations Research & Information Engineering at Cornell University and Past-President of the Applied Probability Society. Prof. Henderson is an expert in the areas of discrete-event simulation, optimization, simulation optimization, and applications to emergency planning. He is well qualified to assess Dr. Bickel's research contributions to decision making with partial information and simulation. | | | | |

Chart of External Reviewers

Eric Bickel

Mechanical Engineering

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|-------------------------|--|-----------------------------------|-----------|---------|--|
| Lee, W. John | Chaired Professor, Department of Petroleum Engineering | University of Houston | Candidate | 8/6/13 | |
| | Prof. Lee is one of the most well-known petroleum engineering academics. He holds the Hugh Roy and Lille Cranz Cullen Distinguished University Chair and is a recipient of the SPE DeGolyer Distinguished Service Medal. He has also served as the U.S. Security & Exchange Commission's primary expert on reserve estimation and reporting. Prof. Lee is an expert reservoir engineering, reserve estimation, and decision making within the oil and gas industry. He is eminently qualified to assess Prof. Bickel's contributions to the theory and practice of decision analysis within the petroleum engineering community. | | | | |
| Parnell, Gregory S. | Professor | US Military Academy at West Point | BC | 6/28/13 | |
| | Prof. Parnell is an expert in decision analysis, risk analysis, game theory and their application to problems concerning homeland security. He has served on three National Research Council committees. He has over 100 publications including: two books, book chapters, refereed papers and conference proceedings. He has served as President of the Decision Analysis Society of the Institute for Operations Research and the Management Science (INFORMS), President of the Military Operations Research Society (MORS), and editor of the Military Operations Research Journal. He has received numerous awards for his research including the Army's Wilbur Payne Award, two INFORMS Koopman Prizes (awarded to the most outstanding military OR publication), and the MORS Rist Prize (best paper award). He was awarded the MORS Thomas Laureate in 2002 for technical contributions and service to the military operations research community. | | | | |
| Pollock, Stephen | Professor Emeritus, Department of Industrial and Operations Engineering | University of Michigan | BC | 6/11/13 | |
| | Prof. Pollock is a leading academic in the field of operations research. In addition to being a member of the National Academy of Engineering, Prof. Pollock is a fellow of INFORMS and the AAAS. He is past-chair of the Industrial and Operations Engineering Department at the University of Michigan. His expertise spans operations research and decision analysis, with a strong focus on methods to improve decisions made under uncertainty. He is well qualified to assess Dr. Bickel's research contributions to decision making with partial information and the discretization of continuous probability distributions. | | | | |
| Schelling, Thomas | Distinguished University Professor Emeritus, Department of Economics | University of Maryland | Candidate | 6/29/13 | |
| | As a Nobel Laureate in Economics, Prof. Schelling is one of the world's most well-known academics, having been awarded the Nobel Memorial Prize in Economic Sciences in 2005 and contributing to the movie "Dr. Strangelove." Prof. Schelling is renowned expert in economics, the theory and application of game theory, decision making under uncertainty, and applications of these fields to a very wide range of areas including nuclear deterrence and climate policy. He is eminently qualified to assess Dr. Bickel's contributions in the area of climate-change policy and climate engineering. | | | | |
| Von Winterfeldt, Detlof | Professor, Industrial and Systems Engineering, Viterbi School of Engineering; Professor, Public Policy and Management, Price School of Public Policy | University of Southern California | BC | 6/12/13 | |
| | Prof. von Winterfeldt is former director of the International Institute for Applied Systems Analysis (IIASA). He co-founded the Department of Homeland Security's Center for Risk and Economic Analysis of Terrorism Events (CREATE). He is a Fellow in INFORMS and the ASA. In 2000 he was awarded the Ramsey Medal for distinguished contributions in decision analysis by the INFORMS Decision Analysis Society. Prof. von Winterfeldt is an expert in the foundations of decision and risk analysis. He has focused extensively on probability assessment and multi-attribute utility theory. He has applied this work across a range of problems in private industry and government. He is well qualified to assess Dr. Bickel's contributions to scoring rules, decision making with partial information, and utility theory. | | | | |
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Chart of External Reviewers

Eric Bickel

Mechanical Engineering


| DECLINED | | | | | |
|-----------------|---|----------------------------|-----------|---------|--|
| Keeney, Ralph | Research Professor Emeritus, Fuqua School of Business | Duke University | Candidate | 5/16/13 | Unfortunately, I will not be able to provide a letter. Between now and July 1, I have only two weeks in the US and am way over-committed during that time period. Thus, I would not have the time for a quality appraisal. |
| Kleinmuntz, Don | Chief Analytics Office; past Professor, College of Business, University of Illinois, Urbana-Champaign | Strata Decision Technology | Candidate | 5/22/13 | I am reluctant to agree to do this. Please don't take this the wrong way – I know Professor Bickel's work very well, and think very highly of him on both a personal and professional level. However, I moved from academia to the business world almost seven years ago, and I am not sure that a letter from me on corporate letterhead is going to be well received by your College and University-level promotion committees. I spent enough time on P&T committee during my time in academia to know that this could be a tough sell, regardless of my professional qualifications to comment on his work. Thus, I am going to very reluctantly tender my regrets. If I can assist by suggesting other names, please let me know. |

Chart of External Reviewers

Eric Bickel

Mechanical Engineering

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|--------------------|-------------------------------------|-----------------|----|---------|--|
| Winkler, Robert L. | Professor, Fuqua School of Business | Duke University | BC | 4/21/13 | I'm very sorry, but I have to decline because I am overcommitted at the moment in terms of reviews, promises to co-authors regarding work on joint projects, and upcoming research-related travel. My inability to participate in the process should not be interpreted in any sense as a negative indication regarding Professor Bickel. I'm simply too overwhelmed with other things at this time. |
|--------------------|-------------------------------------|-----------------|----|---------|--|

"Murthy, Jayathi" <jmurthy@me.utexas.edu> 
To: "rbarton@psu.edu" <rbarton@psu.edu>
Request for promotion evaluation letter for Prof. Eric Bickel

April 18, 2013 4:10 PM

1 Attachment, 61 KB

Dear Professor Barton,

The Department of Mechanical Engineering at The University of Texas at Austin is considering the promotion of Prof. Eric Bickel from Assistant Professor to Associate Professor with tenure. I am wondering if you would kindly provide us with a confidential assessment of his suitability for promotion?

Please let me know, at your earliest convenience, if you are willing to provide a letter, which will be due by July 1st. It would be helpful if you would copy my assistant at alicia@austin.utexas.edu, as she will be coordinating compilation of the paperwork for your review.

If you are willing and able to assist in this important process, we will arrange to have a formal request, along with Prof. Bickel's promotion materials, made available to you within approximately one week.

Sincerely,

Jayathi Y. Murthy, Ph.D.

Jayathi Murthy
Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering
Director, PRISM: NNSA Center for Prediction of Reliability, Integrity and Survivability of Microsystems

The University of Texas at Austin
204 E. Dean Keeton Street - C2200
Austin, TX 78712-0292
512-471-0796 (phone)
512-232-7917 (fax)
<http://www.nirrdue.edu/discoverypark/prism>



[Eric Bickel CV.pdf \(61 KB\)](#)

Alicia Snyder <alicia@austin.utexas.edu>
To: "rbarton@psu.edu" <rbarton@psu.edu>
Cc: Alicia Snyder <alicia@austin.utexas.edu>
Packet for Assessment of Prof. Eric Bickel

May 6, 2013 1:43 PM

8 Attachments, 8 MB

Dear Professor Barton,

Thank you for accepting my request for a letter of assessment for Prof. Eric Bickel. The Department of Mechanical Engineering is considering Professor Bickel for advancement in rank from Assistant Professor to the position of Associate Professor with tenure at The University of Texas at Austin. We would appreciate your candid assessment of his scholarly contributions to assist our decision-making process. Excellent teaching is an important criterion for promotion, but our evaluation of teaching is being carried out separately, and we are asking you only for information about his scholarly distinction. A copy of the candidate's curriculum vitae is enclosed.

Attached also are five of Professor Bickel's recent publications. We would like your assessment of these works and your answers to these specific questions:

1. Do you know Professor Bickel and, if so, for how long and under what circumstances?
2. How would you assess the contribution to your discipline made by Professor Bickel's publications? Which publications would you judge to be the most significant, and why?
3. How would you assess Professor Bickel's development as a scholar/researcher compared with others in his cohort at research-intensive universities?
4. What is your perspective on Professor Bickel's promise for further growth and significant contributions to his field?

We would be grateful for any additional comments you might have.

Under the laws of the State of Texas, Professor Bickel has the right to request to see any materials in his personnel file, including your letter. Members of our faculty and internal review committees who see your letter as part of the promotion process will hold the comments you make in confidence, however.

For your comments to receive full consideration, we will need to have a letter from you no later than July 1, 2013, if possible. Please let me know if you need more time. An emailed letter by that date is acceptable. To follow, a hard copy with original signature is certainly appreciated. Please enclose a copy of a short version of your curriculum vitae or résumé (preferably no longer than one page) or the URL for your Web site where we may obtain this information. If you have questions, please let me know.

We thank you for your time and assistance with this important matter. As faculty members, we realize that the amount of time required to do a thoughtful review is considerable.

Very truly yours,

Jayathi Y. Murthy, Ph.D.

Ernest Cockrell Jr. Memorial Chair in Engineering

Chair, Department of Mechanical Engineering



COCKRELL SCHOOL OF ENGINEERING

THE UNIVERSITY OF TEXAS AT AUSTIN

Department of Mechanical Engineering • ETC 11.5.160 • <http://www.me.utexas.edu>
1 University Station • 2200 • Austin, Texas • 78712-0292 • (512) 471-1131 • Fax (512) 471-8727

May 6, 2013

Professor Russell Barton
Smeal College of Business
Penn State University
406 Business Building
University Park, PA 16802

Dear Professor Barton,

Thank you for accepting my request for a letter of assessment for Prof. Eric Bickel. The Department of Mechanical Engineering is considering Professor Eric Bickel for advancement in rank from Assistant Professor to the position of Associate Professor with tenure at The University of Texas at Austin. We would appreciate your candid assessment of his scholarly contributions to assist our decision-making process. Excellent teaching is an important criterion for promotion, but our evaluation of teaching is being carried out separately, and we are asking you only for information about his scholarly distinction. A copy of the candidate's curriculum vitae is enclosed.

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1. Do you know Professor Bickel and, if so, for how long and under what circumstances?
2. How would you assess the contribution to your discipline made by Professor Bickel's publications? Which publications would you judge to be the most significant, and why?
3. How would you assess Professor Bickel's development as a scholar/researcher compared with others in his cohort at research-intensive universities?
4. What is your perspective on Professor Bickel's promise for further growth and significant contributions to his field?


We would be grateful for any additional comments you might have.

Under the laws of the State of Texas, Professor Bickel has the right to request to see any materials in his personnel file, including your letter. Members of our faculty and internal review committees who see your letter as part of the promotion process will hold the comments you make in confidence, however.








For your comments to receive full consideration, we will need to have a letter from you no later than July 1, 2013, if possible. Please let me know if you need more time. An emailed letter by that date is acceptable. To follow, a hard copy with original signature is certainly appreciated. Please enclose a copy of a short version of your curriculum vitae or résumé (preferably no longer than one page) or the URL for your Web site where we may obtain this information. If you have questions, please let me know.

We thank you for your time and assistance with this important matter. As faculty members, we realize that the amount of time required to do a thoughtful review is considerable.

Very truly yours,


Jayathi Y. Murthy, Ph.D.

Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering

| | | | |
|---|---|---|---|
|  Eric Bickel CV.pdf (61 KB) |  Approximati...pdf (1.6 MB) |  OSL Compa...pdf (573 KB) |  Reexamine...pdf (480 KB) |
|  Reexaminin...pdf (2.7 MB) |  Sim Approa...pdf (599 KB) |  Bickel Rese...pdf (124 KB) | |

Five Most Significant Works

J. Eric Bickel

1. J. Eric and Shubham Agrawal*. 2013. "Reexamining the economics of aerosol geoengineering." *Climatic Change* 119(3) 993-1006. doi: 10.1007/s10584-012-0619-x.
2. Montiel*, Luis V. and J. Eric Bickel. 2013. "Approximating Joint Probability Distributions Given Partial Information." *Decision Analysis* 10(1) 26-41. doi:10.1287/deca.1120.0261.
3. Hammond*, Robert K. and J. Eric Bickel. 2013. "Reexamining Discrete Approximations to Continuous Distributions." *Decision Analysis* 10(1) 6-25. doi: 10.1287/deca.1120.0260.
4. Montiel*, Luis V. and J. Eric Bickel. 2012. "A Simulation-Based Approach to Decision Making with Partial Information." *Decision Analysis* 9(4) 329-347. doi:10.1287/deca.1120.0252.
5. Bickel, J. Eric and Lee Lane. 2010. "Climate Engineering." In: *Smart Solutions for Climate Change: Comparing Costs and Benefits*, pp. 9-51. Bjørn Lomborg (ed.). Cambridge University Press: Cambridge, UK. 436 pages.

PENNSSTATE



Senior Associate Dean for Research and Faculty
Smeal College of Business
The Pennsylvania State University
210 Business Building
University Park, PA 16802-3603

814-865-3585
Fax: 814-865-7064
rbarton@psu.edu

July 11, 2013

Jayathi Y. Murthy, Ph.D.
Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering
Department of Mechanical Engineering · ETC II 5.160
1 University Station C2200 · Austin, Texas · 78712-0292

Dear Professor Murthy:

I am happy to write an assessment letter for Professor Eric Bickel. I got to know Professor Bickel in 2010 during my appointment as Program Director for Manufacturing Enterprise Systems and Service Enterprise Systems at the National Science Foundation. Eric had already established a national reputation for expertise in decision analysis, and I called on him more than once to assist me in the evaluation of proposals. I was impressed by his thorough knowledge and careful review work, placing him in the top half of an already elite group of reviewers.

I am familiar with Professor Bickel's research not only through my experience at NSF, but because his work has connection with my own research collaboration with Barry Nelson at Northwestern University. Our work is on statistical characterization (both Bayesian and frequentist) of the impact of uncertainty about the precise form of input probability distributions on the output performance of simulation models. While we examine statistical characterization of uncertainty through sampling distributions or posterior distributions based on data, Bickel's recent work finds all distributions consistent with limited knowledge of the true distribution. I find this work groundbreaking, interesting and important. Further, Professor Bickel does not just work in the abstract: his work is informed by real energy industry simulation models. I sought him out recently for examples of such models, to enhance the practice-based grounding of our own research.

Barton for Bickel
July 11, 2013

2

Professor Bickel has an extensive publication record, far beyond expectations for Associate Professor with tenure for the College of Engineering at Penn State. Many of his publications have been in *Decision Analysis*, a top INFORMS journal. I will only focus on three particularly important papers, one from early in his academic career.

The paper “Optimal Sequential Exploration: A Binary Learning Model” was his first publication in *Decision Analysis* and has since been cited by top researchers including Ben Hobbs at Johns Hopkins, Warren Powell at Princeton, and Peter Frazier at Cornell. In this paper Bickel provides a way to overcome the curse of dimensionality on exploring an impractically large decision tree. Based only on marginal and pairwise joint probabilities, he formulates a solvable optimization problem to determine a full joint distribution consistent with these and minimizing the Kullback-Liebler distance to an independent distribution with the same marginals (equivalent to a maximum entropy approach). He shows that the form of the solution permits efficient exploration of the decision tree. This work is still fairly recent. I expect its citation count to continue to grow significantly over time.

More recently, Bickel and his Ph.D. student Robert Hammond had the lead article in the March 2013 issue of *Decision Analysis* entitled “Reexamining Discrete Approximations to Continuous Distributions.” This paper extends the work of Keefer and others in constructing crude (typically three-point) discretizations to continuous distributions. Hammond and Bickel develop practically simple methods that have generally good performance. As for the previous paper, I expect this work to be frequently cited, since such discretizations are critical to the practical application of decision analysis.

As I mentioned earlier, I am particularly interested in some of Professor Bickel’s as yet unpublished work in identifying the set of all distributions consistent with partial information on distributions (and the set of all consistent consequences). This work, “Generating a Random Collection of Discrete Joint Probability Distributions Subject to Partial Information” will appear soon in *Methodology and Computing in Applied*

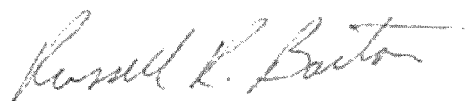
Barton for Bickel
July 11, 2013

3

Probability. A related published work that builds on this is his second article in the March 2013 issue of *Decision Analysis*, this one with his doctoral student Luis Montiel. It extends the work in his influential 2006 paper in two ways. First, it uses the clever distribution generation/simulation method, developed with Montiel, to explore all possible consistent discrete distributions. Second, two new approximation strategies are proposed, the analytic center and the sample average of the generation/simulation distributions. These are shown to produce very good distributions in the sense of distance to all distributions consistent with the partial information.

In my role as NSF program director I had the opportunity to visit top researchers at 24 campuses in the U.S. and England. I would rate Professor Bickel in the top 10% of his peer group in terms of innovative research, rigor, and future potential. In the area of decision analysis I rate him as the top young researcher. You are indeed fortunate to have him on your faculty. I recommend him enthusiastically for promotion to Associate Professor with tenure.

Sincerely,



Russell R. Barton
Senior Associate Dean for Research and Faculty
Smeal College of Business
Professor of Supply Chain and Information Systems
Professor of Industrial Engineering
The Pennsylvania State University

Russell Barton <rb2@psu.edu>

To: Alicia Snyder <alicia@austin.utexas.edu>

RE: Reminder: Request for promotion evaluation letter for Prof. Eric Bickel

July 11, 2013 4:54 PM

1 Attachment: 172 KB

Dear Alicia,

The pdf is attached. I will put a paper copy in the mail.

Sincerely,
Russell

Russell R. Barton
Senior Associate Dean for Research and Faculty
The Mary Jean and Frank P. Smeal College of Business Administration
The Pennsylvania State University
University Park, PA 16802
Phone: 814-865-3585 Email: rbarton@psu.edu

From: Alicia Snyder [mailto:alicia@austin.utexas.edu]
Sent: Tuesday, July 09, 2013 11:33 AM
To: Russell Barton
Subject: Reminder: Request for promotion evaluation letter for Prof. Eric Bickel

Dear Professor Barton,

Just a friendly reminder of your letter due for Prof. Bickel's promotion packet.

Thank you,

Alicia

Alicia Snyder
Assistant Professor
Department of Mechanical Engineering
The University of Texas at Austin
201 C. Dean Preston Street, C2200
Austin, TX 78712
(512) 479-0770
AliciaSnyder@utexas.edu

From: Russell Barton [mailto:rb2@psu.edu]
Sent: Friday, April 19, 2013 1:56 PM
To: Murthy, Jayathi
Subject: RE: Request for promotion evaluation letter for Prof. Eric Bickel

I am happy to do this.

Russell

Russell R. Barton
Senior Associate Dean for Research and Faculty
The Mary Jean and Frank P. Smeal College of Business Administration
The Pennsylvania State University
University Park, PA 16802
Phone: 814-865-3585 Email: rbarton@psu.edu

From: Murthy, Jayathi [mailto:jmurthy@utexas.edu]
Sent: Thursday, April 18, 2013 5:10 PM
To: rbarton@psu.edu
Subject: Request for promotion evaluation letter for Prof. Eric Bickel

Dear Professor Barton,

The Department of Mechanical Engineering at The University of Texas at Austin is considering the promotion of Prof. Eric Bickel from Assistant Professor to Associate Professor with tenure. I am wondering if you would kindly provide us with a confidential assessment of his suitability for promotion?

Please let me know, at your earliest convenience, if you are willing to provide a letter, which will be due by July 1st. It would be helpful if you would copy my assistant at alicia@utexas.edu, as she will be coordinating compilation of the paperwork for your review.

If you are willing and able to assist in this important process, we will arrange to have a formal request, along with Prof. Bickel's promotion materials, made available to you within approximately one week.

Sincerely,

Jayathi V. Murthy, Ph.D.

Jayathi Murthy
Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering
Director, PRISM - NASA Center for Prediction of Reliability, Integrity and Survivability of Mechatronics

The University of Texas at Austin
204 F. Dean Keeton Street - F 2200
Austin, TX 78712-0202
512-477-0744 (phone)
512-477-0742 (fax)
<http://www.engr.utexas.edu/people/faculty/jvm/>



Encl: Figure 6-1 (172.1.2)

Biography for Russell R. Barton

Russell Barton is Professor of Supply Chain and Information Systems in the Smeal College of Business at Penn State, Senior Associate Dean for Research and Faculty, and Associate Director of the Center for the Management of Technological and Organizational Change. He is also the Smeal College liaison for an inter-college and inter-university effort to develop graduate curricula for interdisciplinary design (publications 50, 106 and 107). He recently completed a two-year assignment as Program Director for Manufacturing Enterprise Systems and Service Enterprise Systems at the National Science Foundation. In this role he was responsible for managing a research portfolio with expenditures of over \$9 million annually, supporting academic research in manufacturing and services management across the country. Prior to accepting his NSF appointment, he was Co-Director of the Master of Manufacturing Management degree program at Penn State. From 2002-2005 he served as associate dean for research and Ph.D./M.S. programs. In this role, he supported and coordinated the research activities of over ninety faculty and ten research centers in the Smeal College, with over \$6 million in external funding. He managed the promotion and tenure, sabbatical, internal research award, and doctoral and masters processes, and developed new college processes for post-tenure and administrative reviews. He was a professor in the Department of Industrial and Manufacturing Engineering at Penn State for eleven years prior to joining Smeal, and was professeur invité in the product development and innovation laboratory at École Centrale Paris in the 1998-1999 academic year. He began his academic career at Cornell University in the School of Operations Research and Industrial Engineering after eleven years in industry and consulting.

Dr. Barton's research has focused on the interface between applied statistics and product design and manufacturing. He developed new accelerated testing methods to prove reliability of the first solid state power amplifiers in commercial communications satellites, and developed statistical methods to monitor complex multidimensional manufacturing processes including video displays and surface mount assemblies, and new modeling and optimization methods for simulation-based design. He was invited to speak on his research at an Isaac Newton Institute workshop at Cambridge in Fall 2011. He has received thirty grants supporting research and teaching totaling approximately \$2 million, including ten from the National Science Foundation. He has more than 130 technical publications.

Dr. Barton has taught courses in operations management, new product development, optimization, statistics and quality, and simulation at the undergraduate and graduate levels, and has co-authored continuing engineering education courses used at RCA and GE. He has received seven awards for teaching and curriculum development. He holds a B.S.E.E. from Princeton and M.S. and Ph.D. degrees from Cornell.

Provided by referee.



College of Engineering
UNIVERSITY OF WISCONSIN-MADISON

June 30, 2013

Prof. Jayathi Murthy
Chair, Department of Mechanical Engineering
1 University Station C2200
University of Texas at Austin
Austin, TX 78712

Dear Prof. Murthy:

I am pleased to submit a letter of evaluation supporting Dr. Eric Bickel for promotion to associate professor with tenure in the Department of Mechanical Engineering. I have known Eric for a number of years (mainly through interactions at conferences), but haven't collaborated with him directly. Thus, I feel that I can offer an objective evaluation of Eric's abilities and accomplishments as a researcher. Overall, I think extremely highly of Eric and his work.

Eric has worked primarily in the field of probabilistic modeling within decision analysis, developing novel methods for assessing the subjective probabilities of decision makers. I am also a decision analyst, and likewise have focused on methods to help estimate event probabilities in decision analysis. Therefore, I feel knowledgeable assessing the significance of Eric's past research contributions, and can speak favorably about their originality.

The area of probabilistic modeling has not seen a tremendous amount of activity in the last ten years; most of the leading researchers in this area (such as Dr. James Smith and Dr. Robert Clemen at Duke University) are by now quite senior. The work that Eric has been doing (focusing on novel methods to make probabilities and probability distributions easier and more practical to assess) is building on their contributions, while also revitalizing the field. Eric has clearly established himself as a major player in this area.

Perhaps the characteristic that distinguishes Eric most clearly from his predecessors in probabilistic modeling is his pragmatic focus—stemming from his years of consulting experience. As a result, he is focused on developing new models that can actually be used by practitioners to help organizations make better decisions in the real world (rather than focusing on mathematical niceties that are not practical to implement). Unsurprisingly, his breadth of research interests is perhaps closest to those of Jim Smith at Duke (who was on his dissertation committee at Stanford). Like Eric, Jim has worked on energy problems (R&D portfolio choices at the Department of Energy, and real-options theory in the oil and gas industry), corporate risk aversion, and discretization of probability distributions. My own assessment, however, is that Eric's contributions are if anything more likely to be applied in practice, despite Jim's eminent reputation and numerous awards.

Having spent seven years as a consultant myself before transitioning into a faculty position, I feel I am in a good position to comment on both the advantages and the challenges of taking this path. On the one hand, some people never do successfully make the transition to academia—

Department of Industrial and Systems Engineering

1513 University Avenue Madison, WI 53706 608-262-2686 Fax: 608-262-8454
www.engr.wisc.edu/ic/

continuing to do good work that solves real-world problems, but not generalizing to find the publishable methodological advances inspired by their applied work. For those who do successfully make the transition, however, my sense is that the years of industry experience heighten the relevance of their work, and help them avoid the pitfall of academics who publish papers that do not actually solve any real problems. Depth of real-world experience can help to identify important problems that do not yet have adequate answers in the research literature (such as how to discretize joint distributions), and also opportunities to simplify theoretically well-founded methods that are too complex to be easily applicable in practice. Eric's work seems to me to be an excellent illustration of the blend I am describing here—rigorous methodological advances that are closely tied to the needs of practitioners.

Eric is a productive researcher, especially in the last few years, with five papers published or forthcoming in 2013, five in 2012, and three in 2011. I think this testifies to the good "fit" between his interests and the general campus climate at Austin. While most of Eric's papers are methodological, as I would expect, his research output has been enhanced by the opportunity to collaborate with people working on applied problems in areas like environmental policy and geoen지니어ing. Moreover, Eric has a good eye for important problems that are soluble using his areas of expertise. Thus, many of his papers have involved successful applications of methods such as discretization or simulation, but applied in novel, creative, and rigorous ways. I see that Eric's work is also well funded, with roughly \$800,000 in research funding from a diverse range of sources, including the energy industry, Department of Energy, and National Science Foundation (a CAREER award).

I will now comment on those publications that in my opinion have had the deepest impact on the field, and are the most likely to be adopted in practice. One of those areas is his work on discretization (papers 1, 5, 8, and 13 in Eric's CV). Knowing how best to discretize continuous probability distributions to support efficient computation was an open problem when I was in consulting in the 1980's, and is still not fully solved today. Comparing Eric's work on discretization to that of his forerunner, Jim Smith, the most noteworthy distinction is Eric's focus on methods that are easier to apply than the "gold standard" of Gaussian quadrature (which in my opinion is unlikely to see much application in practice unless embedded in software to ease the computational burden). By contrast, Eric's work (paper 5) rigorously assesses the accuracy of "shortcuts" (such as how much weight to put on the 5th, 50th, and 95th percentiles), which can easily become widely accepted as "rules of thumb" in industry.

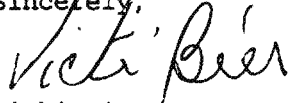
With regard to Eric's other major contributions to decision analysis, I would highlight his work on partial information (papers 4 and 7). This is an important area in practice, since experts are rarely willing or able to give as much detail as "purists" such as Jimmie Savage or Ron Howard might assume. I have been working in this area myself (exploring the use of ordinal information to reduce the elicitation burden), but the unique aspect of Eric's work is his emphasis on joint distributions, where partial information is even more likely to be a problem. The fact that Eric and his student have identified a procedure that appears to be both more accurate and less biased toward independence than the widely used maximum entropy is a major advance in treatment of probabilistic dependence. Moreover, the treatment of dependence is likely to become even more important in future, as decision makers come to expect and understand sophisticated analyses that go beyond the historic assumption of independence.

That being said, however, I am continually surprised at the breadth of Eric's contributions. He has done both empirical and theoretical work on scoring rules for probability assessment (papers 12, 14, 19, and 23), documenting for example that the logarithmic scoring rule is better than other commonly used rules in the context of nonlinear utility functions (paper 23). He is well known for his earlier applications of decision theory to the world of sports (papers 17 and 26-28), and has contributed to organization of the "sports track" at the annual INFORMS conference. Most recently, due to the perils of "auto-complete," I accidentally sent Eric a news story about sunspots and solar storms that I had intended to share with my brother. Instead of the reaction of bafflement that I had expected from such a gaffe, Eric immediately replied that he had long been interested in undertaking a study of the calibration of forecasts of "space weather," similar to what he has already done for weather forecasters in papers 12 and 19.

With regard to service, Eric was recently chosen as president-elect of the Decision Analysis Society, something that I did not achieve until a much later stage of my career. I fully expect him to be nominated to run for president of the Society sometime in the next few years. In fact, he has clearly already made substantial contributions in service to the Decision Analysis Society, serving on the editorial board for the society's flagship journal, and having previously served as a member of the council and on several award committees. His role as organizer of the 2013 annual conference of the Decision Analysis Affinity Group is yet another sign of Eric's uniquely valuable position at the interface between academia and practice. I would note that Eric has managed to retain his feel for the needs of practitioners without sacrificing the number and academic rigor of his publications.

I can conclude by saying that I have great respect for Eric and his work. He is a productive researcher, and has already been recognized as a Fellow in the Society of Decision Professionals; I would expect the list of his honors and awards to continue to grow in future. With his unique combination of rigorous research skills, creativity, enthusiasm, and interest in problems important to practitioners, I have confidence that he will continue his strong record of academic research, and that he would be considered suitable for appointment as associate professor at the University of Wisconsin-Madison, if we had an open position in his area.

Sincerely,



Vicki Bier

Professor Vicki Bier, Chair
Department of Industrial and Systems Engineering
University of Wisconsin-Madison
Madison, WI 53706

Dr. Vicki M. Bier
Chair and Professor,
Department of Industrial and Systems Engineering
University of Wisconsin



Education

- PhD, Massachusetts Institute of Technology

Research Interests

- Operations Research
- Decision Analysis
- Risk Analysis
- Technological Hazards
- Security
- Critical Infrastructure Protection
- Security in the Supply Chains for Food and Agricultural Products

Honors and Awards

- Women's Achievement Award, American Nuclear Society, 1993
- Outstanding Service Award, Society for Risk Analysis, 2000
- Outstanding Service Award, Society for Risk Analysis, 2000
- Best Presentation Award, Operations and Power Division, American Nuclear Society, 2001
- Fellow, Society for Risk Analysis

Publications

- Bier, V. M., S. Oliveros, and L. Samuelson, "Choosing What to Protect: Strategic Defensive Allocation against an Unknown Attacker," *Journal of Public Economic Theory* 9(4): 563-587, 2007.
- Dighe, N., J. Zhuang, and V.M. Bier, "Secrecy in Defensive Allocations as a Strategy for Achieving More Cost-effective Attacker Deterrence," accepted for publication in *International Journal of Performability Engineering*, special issue on System Survivability and Defense against External Impacts.
- Bier, V. M., "Game-Theoretic and Reliability Methods in Counter-Terrorism and Security," *Modern Statistical and Mathematical Methods in Reliability, Series on Quality, Reliability and Engineering Statistics*, World Scientific Publishing Co., 2005.
- Carayon, P., S. Kraemer, and V. M. Bier, "Human Factors Issues in Computer and E-business Security." *Handbook of Integrated Risk Management for E-Business: Measuring, Modeling and Managing Risk* (A. Labbi, editor), J. Ross Publishing, 2005.

Provided by department.



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Samuel E. Bodily.
John Tyler Professor of Business Administration

Jayathi Y. Murthy, Ph.D.
Chair, Department of Mechanical Engineering
1 University Station C2200
Austin, Texas 78712-0292

Dear Professor Murthy:

I am very much in support of Eric Bickel being promoted to Associate Professor with Tenure.

You asked in particular for an assessment of the following:

1. Do you know Professor Bickel and, if so, for how long and under what circumstances?

I met Eric when I was a visiting Professor at Stanford in 1996-97. I enrolled in a short course done by Ron Howard on behalf of Strategic Decision Group for decision professionals and Eric was the teaching assistant. Eric was involved in breakout sessions and in providing a lot of the material used by Ron. During my one-year visit at Stanford, I interacted with Eric on several occasions. He impressed me then as a highly competent graduate student and consultant. I was interested in his thesis work and had several conversations with him about that. He seemed very mature professionally from those first meetings.

Over the years, I have interacted with Eric in the Decision Analysis Society, have seen many of his presentations at meetings of INFORMS, and I have followed his stream of published work.

2. How would you assess the contribution to your discipline made by Professor Bickel's publications? Which publications would you judge to be the most significant, and why?

Actually, I like the portfolio. The five papers that you sent me all make a contribution to the discipline; I couldn't say that one stands out among them, nor that there are any of them that don't make a contribution.

Papers that you didn't send me also are significant and make an impression. The evaluation of his work on Climate change with the 2009 Copenhagen Consensus is impressive. I saw him in the movie *Cool It* and was excited to see a novel approach being put forward, at some risk to the proponents. The proposal they make would also

have significant risks to people on our planet, and it was refreshing to see a work where the risk analysis was explicitly included.

3. How would you assess Professor Bickel's development as a scholar/researcher compared with others in his cohort at research-intensive universities?

On the research front, Eric has demonstrated continuing contributions to the first four (major streams) he mentioned in his research statement. It is fair to say that he has established a clear and strong identity for himself in the field of Decision Analysis.

Eric has shown more academic productivity in recent years, equivalent to what younger tenure-track faculty might produce in a similar span of time. And he had many pieces prior to his academic appointments. I value his exposure to the real world that his consulting experience gave him—it puts him in position to know what can matter to practitioners and to produce work that will help them.

My summary of Eric's research record is that he has work of a high enough quality, in sufficient quantity, and with impressive originality, to warrant tenure. That combined with the other parts of his whole package that he offers, including his passion and attention for teaching, his development of teaching materials, and his contributions to practicing managers, would make him a hard person to replace. U. Texas will do well to keep him.

4. What is your perspective on Professor Bickel's promise for further growth and significant contributions to his field?

I have heard presentations by Eric on several occasions. They have always been of first-rate quality. He is highly regarded within the Decision Analysis community of INFORMS.

I especially appreciate that Eric is interested in the practical application of decision analysis. This drives the work that he does and ensures that he will have a big impact on what actually gets done, a notable achievement.

Sincerely,

(signed; sent as an email attachemt).

Samuel E. Bodily

"Bodily, Sam" <BodilyS@Darden.virginia.edu>
 To: Alicia Snyder <alicia@austin.utexas.edu>
 RE: Packet for Assessment of Prof. Eric Bickel

July 1, 2013 5:13 PM

1 Attachment, 91 KB

Attached is the letter.

Best,
 Sam

Samuel E. Bodily
 John Tyler Professor of Business Administration
 Darden Graduate Business School, Univ. of Virginia
 100 Darden Boulevard
 Charlottesville, VA 22903
 Phone: 434-924-4813 Fax: 434-243-7677

From: Alicia Snyder [mailto:alicia@austin.utexas.edu]
 Sent: Wednesday, May 15, 2013 8:01 PM
 To: Bodily, Sam
 Subject: Packet for Assessment of Prof. Eric Bickel

Dear Professor Bodily,

Thank you for accepting my request for a letter of assessment for Prof. Eric Bickel. The Department of Mechanical Engineering is considering Professor Bickel for advancement in rank from Assistant Professor to the position of Associate Professor with tenure at The University of Texas at Austin. We would appreciate your candid assessment of his scholarly contributions to assist our decision-making process. Excellent teaching is an important criterion for promotion, but our evaluation of teaching is being carried out separately, and we are asking you only for information about his scholarly distinction. A copy of the candidate's curriculum vitae is enclosed.

Attached also are five of Professor Bickel's recent publications. We would like your assessment of these works and your answers to these specific questions:

1. Do you know Professor Bickel and, if so, for how long and under what circumstances?
2. How would you assess the contribution to your discipline made by Professor Bickel's publications? Which publications would you judge to be the most significant, and why?
3. How would you assess Professor Bickel's development as a scholar/researcher compared with others in his cohort at research-intensive universities?
4. What is your perspective on Professor Bickel's promise for further growth and significant contributions to his field.

We would be grateful for any additional comments you might have.

Under the laws of the State of Texas, Professor Bickel has the right to request to see any materials in his personnel file, including your letter. Members of our faculty and internal review committees who see your letter as part of the promotion process will hold the comments you make in confidence, however.

For your comments to receive full consideration, we will need to have a letter from you no later than July 1, 2013, if possible. Please let me know if you need more time. An emailed letter by that date is acceptable. To follow, a hard copy with original signature is certainly appreciated. Please enclose a copy of a short version of your curriculum vitae or resume (preferably no longer than one page) or the URL for your Web site where we may obtain this information. If you have questions, please let me know.

We thank you for your time and assistance with this important matter. As faculty members, we realize that the amount of time required to do a thoughtful review is considerable.

Very truly yours,

Jayathi Y. Murthy, Ph.D.

Chair, Department of Mechanical Engineering

Alicia Snyder
 Assistant Professor
 Department of Mechanical Engineering
 The University of Texas at Austin

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/

Bickel Letter...pdf (91 KB)

Dr. Samuel E. Bodily
John Tyler Professor
Department of Darden Graduate School of Business
University of Virginia



Education

- Ph.D., Massachusetts Institute of Technology
- S.M., Massachusetts Institute of Technology
- B.S., Brigham Young University

Research Projects

- Batten Center for Entrepreneurial Leadership
- International Institute of Applied Systems Analysis Visiting Research Scholar
- University of Virginia Marriott Corporation

Teaching Areas

- Quantitative Analysis (MBA-I): decision making under uncertainty, statistics, forecasting, simulation, optimization.
- Management Decision Models (MBA-II): Structuring business spreadsheet models, risk analysis and simulation, multiattribute decision analysis, managing the specialist/user interface, decision support systems.
- eStrategy (MBA-II): strategy concepts and frameworks in old and new economies
- Strategy (MBA-I): framework, concepts, and tools of business and corporate strategy; industry analysis and competitive position.
- Statistical Analysis (MBA-II): multivariate statistics, advanced forecasting.

Honors and Awards

- Wachovia Award for Excellence in Teaching Materials, Pedagogical Excellence,
- Wachovia Award for Excellence in Teaching Materials, Distinguished Case Writer
- Wachovia Award for Excellence
- SDG (Strategic Decisions Group) Faculty Fellow

Refereed Journal Articles

- "Preferences for Consumption Streams: Scale Invariance, Correlation Aversion, and Delay Aversion Under Mortality Risk, " (with Casey Lichtendahl) Operations Research, accepted August 2, 2009.
- "I Can't Get No Satisfaction: How Bundling and Multi-Part Pricing Can Satisfy Consumers and Suppliers", (with Rafi Mohammed), Electronic Commerce Research, 6:187-200, 2006. Also published in Proceedings of 6th International Conference on eCommerce Research, Dallas, October, 2003.
- "Strategic Indicators of B2B eMarketplace Financial Success," (with Tim Laseter), Electronic Markets (14:4) 2004.
- "Three Point Approximations for Continuous Random Variables", Management Science, May, 1983 (with Donald L. Keefer).
- "Optimal Consumption and Portfolio Strategies in a Discrete Time Model with Summary Dependent Preferences", Journal of Financial and Quantitative Analysis, March, 1982 (with C. C. White).

Provided by department.



DEPARTMENT OF STATISTICS

JUNE 29, 2013

DR. JAYATHI Y. MURTHY, CHAIR
DEPARTMENT OF MECHANICAL ENGINEERING
THE UNIVERSITY OF TEXAS AT AUSTIN
UNIVERSITY STATION C2200
AUSTIN, TX 78712-0292

Dear Dr. Murthy,

I am pleased to assist in the evaluation of Dr. Eric Bickel for tenure and promotion to Associate Professor. Dr. Bickel has established himself as a leading scholar in decision sciences and is deserving of tenure and promotion. My answers to your four specific questions are given below.

First, I met Dr. Bickel when he visited the Baker Institute for Public Policy at Rice University in 2011 at the invitation of Amy Jaffee, Peter Hartley and Ken Medlock. We had a great visit and learned of mutual research interests related to energy decision making. Since that time we have met several times when he visits Houston, continuing our research discussions. We have not yet collaborated on research, but I look forward to doing so as my own schedule clears and I continue with my development in energy analytics and decisions.

To your second question, Dr. Bickel has contributed to the methodological development of probability based decision making and the implementation of these methodologies. He works seamlessly between understanding the core mathematical constructs and putting these tools to an effective use.

- His 2007 *Decision Analysis* paper "Some Comparisons among Quadratic, Spherical, and Logarithmic Scoring Rules" is an in depth examination of these scoring rules that clearly identifies the properties of each. The choice of scoring rule impacts the outcome of any decision theory process. Dr. Bickel demonstrates the ex ante optimality of logarithmic scoring rules under nonlinear utility functions or when rank order is important. He further shows that the deviation from a risk-neutral solution is generally small, adding to the practical use of scoring rules in general.
- The 2012 *Decision Analysis* paper "A Simulation-Based Approach to Decision Making with Partial Information" addresses the important problem of joint probability distributions and thereby dependence between components of the decision framework. The paper proposes a robust decision-making procedure that

DR. KATHERINE ENSOR · RICE UNIVERSITY · DEPARTMENT OF STATISTICS—MS 138 · P.O. BOX 1892 · HOUSTON, TEXAS 77251-
PHONE: 713-348-4687 · FAX: 713-348-5476 · E-MAIL: ENSOR@RICE.EDU

explores, through simulation, the range of possible joint distributions underlying the decision framework. The algorithm is fast, easy to implement and provides a solution to capturing the inherent dependence in the decision process when the information is incomplete and direct modeling is not possible. A common solution in this situation is to incorrectly assume components are independent; an assumption that will lead (and has lead) to cascading failures. This paper is an example of the exceptional body of work by Dr. Bickel that attempts to fully capture the critical components of the decision process. For example, continuing this line inquiry is the paper "Approximating Joint Probability Distributions Given Partial Information" where his approach to estimating the joint probability distribution compares favorably to standard approaches in the literature.

- In the 2013 Decision Analysis paper "Reexamining Discrete Approximations to Continuous Distributions" he takes the very broad Pearson distribution system and develops a three-point discrete approximation optimized to the parameterizations within this system. This is a critical contribution to realized decision making as the decision process is discrete, but the underlying probability distributions of the information going in to those decisions are generally continuous.

Moving to your third question, Dr. Bickel has clearly established himself as a leading scholar in decision analysis. He is extremely well published, well funded and a strong contributor to the community through his editorships, conference participations and invited speaking opportunities. Further, his ties to the corporate community are a strong indicator of the relevance of his research to leading global corporations. Dr. Bickel is clearly a leader as evidenced by his initiation of the joint corporate outreach between the University of Texas and Stanford; simply impressive.

And to your fourth question, in my opinion, Dr. Bickel will only continue to excel in his international reputation. He has established a strong and important research trajectory; research that is important not only to the academic community but to the corporate community. I congratulate the University of Texas for another excellent hire and mentoring of a rising star. He would certainly be a strong and welcome addition to the faculty at Rice University at the rank of associate professor with tenure.

With best regards,



Katherine Bennett Ensor, Ph.D.
Professor and Chair
Department of Statistics, MS 138
Rice University
(713) 348 4687
ensor@rice.edu

Kathy Ensor <ensor@rice.edu>
To: Alicia Snyder <alicia@austin.utexas.edu>
Re: Reminder Request for promotion evaluation letter for Prof. Eric Bickel

July 31, 2013 7:21 AM

1 Attachment: 265 KB

Alicia -

Attached is my letter. Please let me know if additional information is needed. Do I need to send a hard copy?

Kathy

Katherine Bennett Ensor, Ph.D.
Department of Statistics
Rice University
Duncan Hall Office # 2080
(713) 348-4687
ensor@rice.edu

On Jul 29, 2013, at 6:05 PM, Alicia Snyder wrote:

Thank you, Prof. Ensor!

Alicia

Alicia Snyder
Department of Statistics
The University of Texas at Austin
2010 East Deaner Street, 12100
67811-0104
Austin, TX 78712
512 491-0106
alsnyder@stat.utexas.edu

On Jul 29, 2013, at 10:19 AM, Kathy Ensor <ensor@rice.edu> wrote

Expect it Tuesday.

Katherine Bennett Ensor, Ph.D.
Department of Statistics, MS 138
Rice University
Houston, TX 77251-1892
ensor@rice.edu
713 348 4687
Duncan Hall 2080

On Jul 28, 2013, at 9:02 PM, Alicia Snyder wrote:

Dear Dr. Ensor,

Dr. Murthy asked me to check with you on the progress of your assessment letter for Prof. Eric Bickel's promotions package, as it is seriously past due. When might we expect to receive it?

Thank you again,

Alicia

Alicia Snyder
Department of Statistics
The University of Texas at Austin
2010 East Deaner Street, 12100
67811-0104
Austin, TX 78712
512 491-0106
alsnyder@stat.utexas.edu

On Jul 17, 2013, at 3:48 PM, Alicia Snyder wrote:

Terrific! Thank you again, Alicia

On Jul 17, 2013, at 3:29 PM, Kathy Ensor <ensor@rice.edu> wrote:

Alicia - I was able to get a hold of the earlier e-mail. No need to resend. kathy

.....
Katherine Bennett Ensor, Ph.D.
Department of Statistics, MS 138
Rice University
Houston, TX 77251-1892
ensor@rice.edu
713 348 4687
Duncan Hall 2080
.....

On Jul 9, 2013, at 10:36 AM, Alicia Snyder wrote:

Dear Professor Ensor,

Just a friendly reminder for the due assessment letter for Prof. Bickel's promotions' packet.

Thank you,

Alicia

Alicia Snyder
Assistant to the Chair
Department of Mechanical Engineering
The University of Texas at Austin
444 E. Dean Keeton Street - 2020
E10 5 2020
Austin, TX 78712
737 497 4140
asnyder@utmsi.utexas.edu

On May 6, 2013, at 3:16 PM, Kathy Ensor <ensor@rice.edu> wrote:

I prefer electronic materials if possible.

Katherine Bennett Ensor
Professor and Chair of Statistics
Rice University
ensor@rice.edu

On May 6, 2013, at 3:34 PM, Alicia Snyder <alicia@austin.utexas.edu> wrote:

Thank you very much, Dr. Ensor. I will have Prof. Bickel's packet to you shortly.

Sincerely,

Alicia

On May 6, 2013, at 2:27 PM, Kathy Ensor <ensor@rice.edu> wrote:

Yes - I am happy to help with this evaluation.

Katherine Bennett Ensor
Professor and Chair of Statistics
Rice University
ensor@rice.edu

On May 6, 2013, at 2:16 PM, "Murthy, Jayathi" <jmurthy@ms.utexas.edu> wrote:

Dear Professor Ensor,

The Department of Mechanical Engineering at The University of Texas at Austin is considering the promotion of Prof. Eric Bickel from Assistant Professor to Associate Professor with tenure. I am wondering if you would kindly provide us with a confidential assessment of his suitability for promotion?

Please let me know, at your earliest convenience, if you are willing to provide a letter, which will be due by July 1st. It would be helpful if you would copy my assistant at alicia@austin.utexas.edu, as she will be coordinating compilation of the paperwork for your review.

If you are willing and able to assist in this important process, we will arrange to have a formal request, along with Prof. Bickel's promotion materials, made available to you within approximately one week.

Sincerely,

Jayathi Y. Murthy, Ph.D.

Jayathi Murthy
Linnet Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering
Director, PRISM, NASA Center for Prediction of Reliability, Integrity and Survivability of Microsystems

The University of Texas at Austin
201 E. Dean Keeton Street - C1200
Austin, TX 78712-0201
512-471-0796 (phone)
512-232-7517 (fax)
<http://www.utdallas.edu/~jmurthy/prism/>
<|_Eric_Bickel_CV.pdf>

Bickel.pdf (245 kB)

Dr. Kathy B. Ensor
Chair and Professor, Department of Statistics
Rice University



Education

- B.S.E., Arkansas State University
- M.S., Arkansas State University
- Ph.D., Statistics (1986) Texas A&M University

Research Areas

Time series including categorical time series, spatial statistics, spatial-temporal methods, stochastic simulation, hierarchical modeling and information integration, stochastic process modeling and estimation. Application areas of financial modeling, risk management and environmental statistics, and environmental impact on health.

Teaching Areas

Theoretical foundations and advances in statistics, probability and statistics for civil and environmental engineers, methods for statistical finance and risk based solutions to engineering challenges.

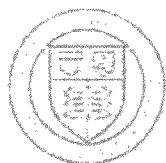
Honors and Awards

- Elected Fellow of the American Association for the Advancement of Science (AAAS)
- Fellow, American Statistical Association, American Statistical Association (2000)
- Fellow of the American Statistical Association, American Statistical Association (1998)
- Julia Miles Chance Award for Excellence in Teaching, Rice University (1998)

Refereed Journal Articles

- Ensor, Katherine B. "A Case-Crossover Analysis of Out-of-Hospital Cardiac Arrest and Air Pollution." (2013) In Press
- Ensor, Katherine B. "Discussion on an approach for indentifying and predicting economic recessions in real-time using time-frequency functional models."
- Ensor, Katherine B. "Dynamic Factor Model on directional drilling system." (May 2012) 1-7, 23-25.
- Ensor, Katherine B. "Time Series Factor Models." In Press
- Ensor, Katherine B. with L. Raun "Association of Out-of-Hospital Cardiac Arrest with Exposure to Fine Particulate and Ozone Ambient Air Pollution from Case-Crossover Analysis Result: Are the Standards Protective."
- Ensor, Katherine B. With Sarah Thomas and Bonnie Ray. "A Model-based Approach for Clustering Air Quality Monitoring Networks in Houston, Texas." Environmetrics (2010) Submitted
- Ensor, Katherine B. with Kamal Hamidieh "Simple Method for Time Scaling Value-at-Risk: Let the Data Speak for Themselves." Journal of Risk Management in Financial Institutions. (2011) In Press
- Ensor, Katherine B. with Loren Hopkins Raun and David Persse "A Case-Crossover Analysis of Out of Hospital Cardiac Arrest and Ambient Multipollutant Atmospheres on a Fine Temporal and Spatial Scale." The Journal of the American Epidemiological Association (2011) Submitted
- Ensor, Katherine B., with Alejandro Cruz Marcelo and Gary Rosner "Estimating the Term Structure with a Semiparametric Bayes Population Model: An Application to Corporate Bonds." The Journal of the American Statistical Association (2011) In Press

Provided by department.



Cornell University
Operations Research and
Information Engineering

Shane G. Henderson p. (607) 255-9126
Professor f. (607) 255 9129
School of ORIE sgh9@cornell.edu
230 Rhodes Hall
Ithaca, NY 14853

May 21, 2013

Professor Jayathi Y. Murthy
Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering
University of Texas at Austin
ETC II 5.160
1 University Station C2200
Austin TX 78712-0292

Dear Professor Murthy:

Thank you for contacting me regarding your evaluation of Eric Bickel for tenure and promotion. I have known Eric by reputation since he graduated from Stanford, and followed his work in the operations-research community since he rejoined academia after several years working in the consulting industry. I also spent some time meeting with him and learning more about the work he is doing with Ph.D. students last November when I visited to give a seminar. Based on these interactions and my reading of the papers included in his packet, I am very supportive of Eric's case for tenure.

Eric has quite a diverse portfolio of research interests, but perhaps the dominant themes are decision-making under uncertainty and applications in the energy sector. I am not qualified to analyze his work in the energy sector, but have good things to say about his work in decision analysis, and his "ambassadorial role" between academics and practitioners in his chosen application areas.

The work I have followed most closely in Eric's body of decision-analysis research is his work on, as he terms it in his research statement, "probabilistic modeling." In this work, Eric and his Ph.D. students develop methods for decision problems where there is considerable uncertainty about the distribution of the random quantities that are relevant to the decision. Standard practice is to select a single probability distribution that is consistent with available information, assume that this is the correct distribution, and proceed to identify the "best" decision with respect to this distribution. This can lead to poor decisions in realistic contexts, as Eric's publications in this area show. He then develops a clever method for enumerating a large number of probability distributions that are consistent with the available information based on uniform sampling from a certain polytope, and discusses methods for identifying decisions that are robust with respect to the choice of probability distribution from within the family of enumerated probability distributions. This work is mathematically elegant, and important and straightforward to apply in many practical situations. It is a high-quality contribution to the body of decision-analysis theory and practice that I value. Eric is, indeed, a leader in the decision-analysis community with regard to new approaches to identifying decisions that are robust to "model uncertainty."

I am not an expert on the topic of the paper "Some Comparisons among Quadratic, Spherical, and Logarithmic Scoring Rules," but I was able to follow the key ideas. Eric points out a shortcoming with some strictly proper scoring rules, in that when they are used to try to rank evaluators, as he has done in an educational context where evaluators are students, they do not necessarily lead to a robust ranking of the evaluators. He also establishes that the logarithmic scoring rule *is* robust in this sense, and that it has another appealing property in that it is less sensitive to the exact form of the utility function of an evaluator than quadratic and spherical scoring rules. Here again, we see that Eric's research is motivated through relevant practical issues, in this case his use of these methods in scoring student responses to multiple-choice questions and using those scores to rank students.

I also looked at the paper "Reexamining discrete approximations to continuous distributions." In this paper, Eric and a Ph.D. student evaluate various 3-point approximations to continuous distributions from the perspective of the ability of the approximations to approximate moments of distributions from the

Pearson family. The paper is carefully executed and thorough. Having said that, this area of research is far less compelling to me than the work evaluated above.


The comments above refer to only one side of Eric's research portfolio. He also has a significant presence in questions related to energy and climate engineering. I am not qualified to evaluate the quality and impact of this work, but I can comment on the role Eric plays in bringing rigorous decision analysis methods to important questions in that domain. It is essential that we have experts who understand the impact of uncertainty and statistical dependence in questions of this magnitude. It is absolutely clear to me that Eric has the necessary depth of understanding, and the ability to communicate his ideas to those in this application area without that knowledge, to help improve the quality of analysis and decision-making. Eric's role here is something of an ambassador, helping ensure a flow of ideas and problems back and forth between academics and practitioners. This is an extremely valuable role that few academics are able to take on, and Eric has demonstrated excellence in doing so.

Eric's research funding level is exemplary for a specialist in Operations Research. Operations Research is very much a "small science" in that successful research does not require laboratories, and in that light the research support he has garnered is impressive. He has demonstrated an ability to attract funding from both industry and governmental sources. The CAREER award from the NSF is awarded to very few researchers, and is a particularly important honour.

On the professional service side, I haven't worked directly with Eric, but his CV points to a contribution that is well above average for a person going through a tenure evaluation. He is very active in editorial work, in conference organization, and in professional leadership, with his appointment to the leadership of the INFORMS Decision Analysis Society representing a substantial commitment.

Eric is an important contributor to his chosen field of decision analysis, and he plays a vital role in ensuring a flow of ideas back and forth between academics and practitioners, because he is one of those select academics that is equally at home in both spheres. His research is academically interesting, highly applicable and impactful. It is therefore my pleasure to support his case for promotion and tenure.

Sincerely,


Shane Henderson

Dr. Shane G. Henderson
Professor
School of Operations Research and Information Engineering
Cornell University



Education

- B.S., University of Auckland
- M.S., Stanford University
- Ph.D., Stanford University

Research Interests

Shane Henderson works on the theory and application of stochastic simulation and applied probability, with emphasis on the interface between these areas and optimization. His primary research interests lie in discrete-event simulation. An emphasis in his work is the interplay between optimization and simulation. In particular, he is interested in structured simulation optimization, where the optimization problem enjoys certain properties, like convexity, that one can exploit to develop algorithms that are robust and fast. Specific applications include radiation treatment planning; call center planning, yacht match racing, ambulance deployment, and adaptive Monte Carlo.

Teaching Interests

Shane Henderson teaches courses in probability and statistics, simulation, and mathematical modeling. He is a great believer in case-based learning and uses a problem-driven classroom approach in his mathematical-modeling courses. He strives for both mathematical rigor and practical relevance in the classroom.

Honors and Awards

- Best Operations Research/Management Science Focused Student Paper (Winter Simulation Conference) 2011
- Top scientific oral abstract and winner of the Association of Air Medical Services Barbara A. Hess Research and Education Award (Association of Air Medical Services) 2011
- Michael Tien Excellence in Teaching Award (Cornell University) 2008
- Ph.D. Colloquium Plenary Speaker (Winter Simulation Conference) 2008
- NSF Career Award (NSF) 1999

Refereed Journal Articles

- Henderson, Shane G. 2009. "Operations research tools for addressing current challenges in emergency medical services".
- Kim, S., Shane G Henderson. 2007. "Adaptive control variates for finite-horizon simulation." *Mathematics of Operations Research* 32 (3): 508-527.
- Steckley, S. G., Shane G Henderson. 2007. "The error in steady-state approximations for the time-dependent waiting time distribution." *Stochastic Models* 23 (2): 307-332.
- Henderson, Shane G., Barry L Nelson. 2006. "Simulation". Elsevier Science.
- Henderson, Shane G., Sheldon Jacobson, Stewart Robinson. 2012. "Tutorial: Teaching an advanced simulation topic." Paper presented at Proceedings of the 2012 Winter Simulation Conference, December 12.

Prepared by department.

UNIVERSITY of HOUSTON

CULLEN COLLEGE of ENGINEERING

Petroleum Engineering

August 5, 2013

Dr. Jayathi Y. Murthy

Department of Mechanical Engineering

The University of Texas at Austin

Austin, TX 78712-0292

Re: Assessment of Dr. Eric Bickel

Dear Dr. Murthy:

I strongly recommend Dr. Eric Bickel for tenure and promotion to Associate Professor at the University of Texas. I believe that his resume speaks for itself in areas of scholarly achievement, professional service, and potential for continued growth in the future.

Dr. Bickel's area of expertise, decision theory, is not my area (I am a petroleum engineer). Because of this difference in backgrounds, I am not able to assess properly the selected publications you sent to me. However, I am familiar with the publications that Eric has written about applications of decision theory to petroleum exploration and production issues and the book he has co-authored on the subject, and I find the contributions to be of the highest level.

I have known Dr. Bickel since 2004, when we were colleagues at Texas A&M University. I audited his class on decision theory taught there in the Industrial Engineering Department, and I have observed his joint research with another colleague, Dr. Duane McVay. In brief, the quality of his scholarship is clearly outstanding, and the research grants he received were highly competitive.

Since leaving A&M, it is clear to me that Eric has continued to grow intellectually and professionally. Given this evidence of growth in the recent past, I expect growth in the future. Eric has performed with the best of his peers.

Sincerely yours,



W. John Lee

Hugh Roy and Lillie Cranz Cullen Distinguished University Chair
and Professor of Petroleum Engineering

UNIVERSITY OF HOUSTON PETROLEUM ENGINEERING PROGRAM
DEPARTMENT OF CHEMICAL & BIOMOLECULAR ENGINEERING
UH ENERGY RESEARCH PARK • 5000 GULF FRWY, BLDG 9 ROOM 219 HOUSTON, TEXAS • 77204 • 0945

"Lee, W. J" <wjlee@Central.UH.EDU>
To: Alicia Snyder <alicia@austin.utexas.edu>
Cc: "wjlee3@uh.edu" <wjlee3@uh.edu>
Request for promotion evaluation letter for Prof. Eric Bickel

August 8, 2015 4:57 AM

1 Attachment: BCKB


Alicia,

My assessment letter for Dr. Eric Bickel is attached.

I will try to locate a brief CV of mine and send it to you in a separate email message.

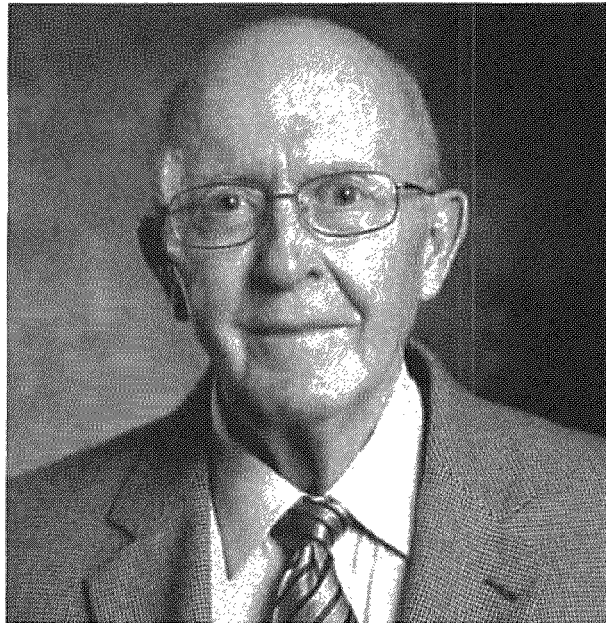
Regards,

John


Eric Bickel.doc (893 KB)

W. John Lee

Professor and Cullen Distinguished
University Chair
University of Houston
Petroleum Engineering Department
5000 Gulf Fwy Bldg 9 Rm 219
Houston, TX 77204-0945
Phone 713-743-4877
e-mail: wjlee3@uh.edu



John Lee is Professor of Petroleum Engineering and holder of the Cullen Distinguished University Chair at The University of Houston. John holds BS, MS and PhD degrees in chemical engineering from the Georgia Institute of Technology.

He worked for ExxonMobil early in his career and specialized in integrated reservoir studies. He later joined the Petroleum Engineering faculty at Texas A&M, and became Regents Professor of Petroleum Engineering. While at A&M, he also served as a consultant with S.A. Holditch & Associates, where he specialized in reservoir engineering aspects of unconventional gas resources. He joined the University of Houston faculty in September 2011.

He served as an Academic Engineering Fellow with the U.S. Securities & Exchange Commission (SEC) in Washington during 2007-8, and was a principal architect of the modernized SEC rules for reporting oil and gas reserves.

John is the author of three textbooks published by SPE and has received numerous awards from SPE, including the Lucas Medal, the DeGolyer Distinguished Service Medal and Honorary Membership. He is a member of the U.S. National Academy of Engineering and the Russian Academy of Natural Sciences.

Provided by referee.



DEPARTMENT OF THE ARMY
UNITED STATES MILITARY ACADEMY
West Point, New York 10996



June 26, 2013

Jayathi Y. Murthy, Ph.D.
Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering

Per your request, I would like to provide my assessment of Professor Bickel's scholarly contributions. I have organized my response using your four questions.

1. Do you know Professor Bickel and, if so, for how long and under what circumstances?

I have known Eric for about 10 years. I first met Eric at Institute for Operations Research/Management Science (INFORMS) meetings. I was very impressed with the importance of his research topics and the quality of his presentations. I encouraged him to run for Decision Analysis Society (DAS) council. DAS is one of the two largest societies within INFORMS with over 1,000 members. He was elected and served with distinction on the council when I was President of the society. I also visited Texas A&M to give a presentation and got to know Eric better during the visit. Subsequently, we have had three of Eric's former students come to West Point as junior faculty members. Each one considered Eric a great teacher and an outstanding mentor.

2. How would you assess the contribution to your discipline made by Professor Bickel's publications? Which publications would you judge to be the most significant, and why?

Eric has already made significant contributions to the decision analysis discipline. His most cited works are his value of information research (Bickel 2008; Bickel and Smith 2006; Bratvold, Bickel and Lohne 2009) and his research into the properties of strictly proper scoring rules (Bickel 2007; Bickel 2010). Value of information is critically important in the oil and gas industry, but is also important in any industry that relies on test information to make critical resource allocation decisions. His recent research on probabilistic modeling (Montiel and Bickel 2013a; Montiel and Bickel 2012) and utility functions (Montiel and Bickel 2013b) offer important new techniques that make these models easier to use on large decision analysis studies.

3. How would you assess Professor Bickel's development as a scholar/researcher compared with others in his cohort at research-intensive universities?

Strong evidence of his standing with his cohorts is his NSF CAREER Award in 2010. My senior decision analysis colleagues and I believe that Eric is an outstanding young scholar/researcher. Eric was selected as an Associate Editor of the Decision Analysis Journal in 2010. Eric has recently been elected Vice President/President-Elect of the Decision Analysis Society. Eric is the only Assistant Professor ever elected to this position. Eric is very unique in the significant impact of his research in energy and climate change. Having served on a National Academy of Sciences committee with Nobel Prize Winner Thomas Schelling, I am impressed that Tom has provided continued favorable reviews of Eric's research.

4. What is your perspective on Professor Bickel's promise for further growth and significant contributions to his field?

Eric has established himself as one of the leading young researchers in decision analysis. In addition, he has made significant contributions to Energy and Climate Policy research. I believe he has great promise for further growth and significant contributions to our field. In addition, his technical expertise and ability to communicate technical information to senior decision makers have and will continue to have a significant impact on national policy. I would not be surprised to see him elected to the National Academy of Engineering.

Sincerely,

G. S. Parnell

GREGORY S. PARNELL, Ph.D.
Professor of Systems Engineering
Department of Systems Engineering

"Fournier, Danielle S" <danielle.fournier@me.utexas.edu>
 To: Alicia Snyder <alicia@austin.utexas.edu>
 FW: Request for promotion evaluation letter for Prof. Eric Bickel

June 28, 2013 7:00 PM

2 Attachments 1.2 MB

FYI

From: Gregory Parnell <greg.parnell@gmail.com>
 Date: Friday, June 28, 2013 12:13 PM
 To: "Fournier, Danielle S" <danielle.fournier@me.utexas.edu>
 Subject: Re: Request for promotion evaluation letter for Prof. Eric Bickel

Danielle

Attached please find my assessment.

Please confirm that you received.

Greg

On Thu, Jun 6, 2013 at 5:48 PM, Fournier, Danielle S <danielle.fournier@me.utexas.edu> wrote:
 Dr. Parnell,

I apologize for the delay in getting Dr. Bickel's packet back to you.

Ms. Snyder has had to be out of the office, due to health reasons, and I am picking up where she left off.

Thank you again for your assistance, we truly appreciate it.

Danielle

Danielle S. Fournier
 Executive Assistant & External Affairs
 Department of Mechanical Engineering
 The University of Texas at Austin
 1 University Station, C2200
 Austin, Texas 78712-0202
 512-475-2969
 512-475-8744 fax
 512-825-8117 cell
 danielle.fournier@me.utexas.edu

Begin forwarded message:

From: "Parnell, Gregory CIV USA USMA" <Gregory.Parnell@usma.edu>
 Subject: RE: Request for promotion evaluation letter for Prof. Eric Bickel
 Date: May 29, 2013 8:09:10 AM CDT
 To: Alicia Snyder <alicia@austin.utexas.edu>

Email is fine. Please send to greg.parnell@gmail.com

GREGORY S. PARNELL, Ph. D.
 Professor of Systems Engineering
 Department of Systems Engineering
 United States Military Academy
 West Point, NY 10996-1905
gregory.parnell@usma.edu
 Office: 845.938.4374
 Mobile: 914.720.3989

-----Original Message-----

From: Alicia Snyder [<mailto:alicia@austin.utexas.edu>]
 Sent: Wednesday, May 29, 2013 9:08 AM
 To: Parnell, Gregory CIV USA USMA
 Subject: Re: Request for promotion evaluation letter for Prof. Eric Bickel

Dr. Parnell,

The packet we use is completely electronic. Do you wish to also have a hard copy? If so, it can be sent out in a week or so.

Alicia

Alicia Snyder
Assistant to the Chair
Department of Mechanical Engineering
The University of Texas at Austin
204 E. Dean Keeton Street - C2200
ETC 5.208
Austin, TX 78712
512.471.0796
alicia@austin.utexas.edu <mailto:alicia.snyder@mail.utexas.edu>

On May 29, 2013, at 8:04 AM, Parnell, Gregory CIV USA USMA wrote:

Alicia

Please mail to

30 Spruce St
Cornwall-on-Hudson, NY 12520

GREGORY S. PARNELL, Ph. D.
Professor of Systems Engineering
Department of Systems Engineering
United States Military Academy
West Point, NY 10996-1905
gregory.parnell@usma.edu
Office: 845.938.4374
Mobile: 914.729.3084

-----Original Message-----

From: Alicia Snyder [mailto:alicia@austin.utexas.edu]
Sent: Wednesday, May 29, 2013 9:02 AM
To: Parnell, Gregory CIV USA USMA
Cc: Fournier S Danielle; Robert Moser; Jayathi Murthy
Subject: Re: Request for promotion evaluation letter for Prof. Eric Bickel

Dear Dr. Parnell,

Thank you very much for your acceptance. I will have the complete packet emailed to you shortly.

Sincerely,

Alicia

Alicia Snyder
Assistant to the Chair
Department of Mechanical Engineering
The University of Texas at Austin
204 E. Dean Keeton Street - C2200
ETC 5.208
Austin, TX 78712
512.471.0796
alicia@austin.utexas.edu <mailto:alicia.snyder@mail.utexas.edu>

On May 29, 2013, at 6:34 AM, Parnell, Gregory CIV USA USMA wrote:

I would be happy to write the assessment and can complete by 1 Jul.

Greg

GREGORY S. PARNELL, Ph. D.
Professor of Systems Engineering

Department of Systems Engineering
United States Military Academy
West Point, NY 10996-1905
gregory.parnell@usma.edu
Office: 845.938.4374
Mobile: 914.720.3989

-----Original Message-----

From: Alicia Snyder (<mailto:alicia@austin.utexas.edu>)
Sent: Wednesday, May 29, 2013 1:20 AM
To: Parnell, Gregory CIV USA USMA
Cc: Fournier, Danielle S
Subject: Request for promotion evaluation letter for Prof. Eric Bickel

Dear Professor Parnell,

The Department of Mechanical Engineering at The University of Texas at Austin is considering the promotion of Prof. Eric Bickel from Assistant Professor to Associate Professor with tenure. I am wondering if you would kindly provide us with a confidential assessment of his suitability for promotion?

Please let me know, at your earliest convenience, if you are willing to provide a letter, which we would prefer to receive by July 1st. More time is available, if necessary. It would be helpful if you would copy my assistant at alicia@austin.utexas.edu <<mailto:alicia@austin.utexas.edu>>, as she will be coordinating compilation of the paperwork for your review.

If you are willing and able to assist in this important process, we will arrange to have a formal request, along with Prof. Bickel's promotion materials, made available to you within approximately one week.

Sincerely,

Jayathi Y. Murthy, Ph.D.

Jayathi Murthy
Ernest Cockrell Jr. Memorial Chair in Engineering Chair, Department of Mechanical Engineering Director, PRISM: NNSA Center for Prediction of Reliability, Integrity and Survivability of Microsystems

The University of Texas at Austin
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Austin, TX 78712-0292
512.471-0796 (phone)
512.432-7917 (fax)
<http://www.purdue.edu/discoverypark/prism>

Vita

GREGORY S. PARNELL, Ph. D.
Professor of Systems Engineering
Department of Systems Engineering
United States Military Academy
West Point, New York 10996-1779
greg.parnell@gmail.com
Mobile: (914) 720-3989



TEACHING

Professor of Systems Engineering at U.S. Military Academy at West Point since 1999. Previous academic positions at U.S. Air Force Academy (Distinguished Visiting Professor), Virginia Commonwealth University, and the Air Force Institute of Technology (AFIT) teaching undergraduate and graduate courses. Served as the first Class of 1950 Chair of Advanced Technology at West Point and Department Head at AFIT.

RESEARCH

Received \$1.925M funding. Research focuses on systems engineering, decision analysis, risk analysis, and resource allocation. Publications in leading operations research and systems engineering archival journals and conference proceedings; lead editor for Wiley Systems Engineering text, *Decision Making in Systems Engineering and Management*, 2nd Ed, 2011; lead author for Wiley *Handbook of Decision Analysis*, 2013; and author of 15 book chapters. Current research is on intelligent adversary decision and risk analysis and model based systems engineering.

PROFESSIONAL SERVICE

Serve on five editorial boards, Board of the Society for Decision Professionals (SDP) and referee for several systems engineering and operations research journals. Previous service includes: President of the Decision Analysis Society of INFORMS (over 1,000 members); President of the Military Operations Research Society (MORS) (over 3,000 members); and Editor of the Military Operations Research journal.

Served on three National Research Council studies and one committee; chair of Methodological Improvements to the DHS's Biological Agent Risk Analysis (2007-8), member of Metrics for Cooperative Threat Reduction Committee (2011-12), member of Evaluating the Effectiveness of the Global Nuclear Detection Architecture Committee (2012-13), member of All of Government Approach to Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) Consequence Management Steering Committee. Served a Peer Reviewer for National Science Foundation Civil, Mechanical and Manufacturing Innovation Division (2013). Participant in eight National Security Agency Advisory Board panels to advise senior leaders since 911. Currently serve on the Technology (since 2007) and Compliance (since 2009) Panels.

AWARDS

Received numerous publication and service awards from INFORMS, MORS, and Society for Risk Analysis. Elected Fellow of MORS, INFORMS, International Council on Systems Engineering (INCOSE), SDP, and Lean Systems Society.

EDUCATION

Ph.D., Engineering-Economic Systems, Stanford University, 1985
M.S., Systems Management, University of Southern California, 1980
M.E., Industrial & Systems Engineering, University of Florida, 1974
B.S., Aerospace Engineering, State University of New York at Buffalo, 1970

Provided by referee.



THE UNIVERSITY OF MICHIGAN

Stephen M. Pollock, Emeritus Herrick Professor of Manufacturing
Department of Industrial and Operations Engineering
Ann Arbor, Michigan 48109-2117

TEL: 734-764-9403
FAX: 734-764-3451
EMAIL: pollock@umich.edu

May 28, 2013

Jayathi Y. Murthy, Ph.D.
Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering
The University of Texas at Austin
204 E. Dean Keeton Street, Stop C2200ETC II 5.160
Austin, Texas 78712-1591

Dear Professor Murthy

I am pleased to offer you my assessment of the scholarly contributions and potential of Assistant Professor Eric Bickel, as you consider his promotion to Associate Professor with tenure. This will be a short letter, however, since – in my over 48 years in academia, 8 of them as departmental chair, 5 as a member of our College's executive committee, and a writer of over 30 letters providing input to promotion/tenure committees throughout the world – I have never been presented with such a clear-cut, obvious case. Indeed, until your letter arrived, I had assumed that Eric was not only *already* tenured at UT, but at the Professor level.

Here are my answers to the questions you posed:

1. Do you know Professor Bickel and, if so, for how long and under what circumstances?

Although I have never been a close friend of, or collaborator with, Eric I have been aware of his professional activities for the past decade or so. I first came across his work when he became a regular contributor to *Decision Analysis*, a journal published by INFORMS (my primary professional society), and a regular presenter at national INFORMS conferences. More recently, after he became associate editor of *Decision Analysis*, I have had informal communications with him concerning the refereeing of articles, etc. Finally, I had the pleasure of getting to know him better this past February, when I presented a seminar at UT Austin and met at length with him and his students.

2. How would you assess the contribution to your discipline made by Professor Bickel's publications? Which publications would you judge to be the most significant, and why?

His research contributions can be roughly categorized into two areas:

a) Theoretical aspects of decision analysis, including methods for assessing subjective continuous probability distributions using discrete cumulative distributions; developing joint distributions given various degrees of dependence; the effects of partial information; methods for generalizing scoring rules used for judging the credibility and accuracy of assessments; and modeling, structuring and validation of utility functions. His most significant publications in this sub-area include:

- Bickel, J. Eric. 2007. "Some Comparisons among Quadratic, Spherical, and Logarithmic Scoring Rules." *Decision Analysis* 4(2) 49-65. (Provides a consistent and informative way to construct scoring rules so as not to unduly penalize outlier assessments. Immediately useful in a variety of contexts.)
- Hammond*, Robert K. and J. Eric Bickel. 2013. "Approximating Continuous Probability Distributions Using the 10th, 50th, and 90th Percentiles." Forthcoming, in *The Engineering Economist*. (Sets to rest some previously open problems in fitting continuous probability distributions using a simple shape assumption and a small number of fractile assessments.)
- Bickel, J. Eric and James E. Smith. 2006. "Optimal Sequential Exploration: A Binary Learning Model." *Decision Analysis* 3(1) 16-32. (Not exactly "significant", but a really nice, clear and interesting article indicative of Bickel's imagination and presentation skills)

b) Applications of decision analysis to problems in finance, ecology, climate and sports. His most influential publications in this sub-area include:

- Bickel, J. Eric. 2013. "Climate Engineering and Climate Tipping-Point Scenarios." *Environment, Systems & Decisions* 33(1) 152-167. (A great article of immediate practical use to climatologists)
- Bratvold, Reidar, J. Eric Bickel, and Hans Petter Lohne. 2009. "Value of Information in the Oil and Gas Industry: Past, Present, and Future." *SPE Reservoir Evaluation and Engineering* 12(4) 630-638. (Widely cited in the prospecting industry.)
- Bickel, J. Eric, James E. Smith, and Jennifer L. Meyer. 2008. "Modeling Dependence among Geologic Risks in Sequential Exploration Decisions." *SPE Reservoir Evaluation and Engineering* 11(2) 352-361. (Widely cited and used among petro-geologists)

3. How would you assess Professor Bickel's development as a scholar/researcher compared with others in his cohort at research-intensive universities?

It is almost impossible to compare Bickel's career development with others "in his cohort". He started his career as a non-academic, working for over 5 years at the Strategic Decision Group, perhaps the country's most accomplished and highly-regarded firm providing decision-analytic consulting services. It appears that his short stint at Texas A&M did not provide a suitable environment for his unusual industry-to-academia career path, but his productivity and intellectual and pedagogical contributions clearly thrived when he joined UT. In the past 5 or so years he has published over 20 well-regarded papers and 4 book chapters, garnered over \$1M in external support for his research, developed popular and innovative courses, achieved a great deal of (positive) publicity in the media for his creative activities, and became a clear leader in national and international professional organizations as well as a

valuable colleague within the organizational structure of the ME and CSE departments.

4. What is your perspective on Professor Bickel's promise for further growth and significant contributions to his field?

Professor Bickel's career trajectory is unusual for its acceleration, direction and consistency. Usually, when an Assistant Professor comes up for a tenure/promotion decision, the major question to be asked is whether the candidate *will* be the kind of colleague one would want to have for the rest of his/her academic career; whether the past accomplishments point towards a *future* of productivity and excellence. In Bickel's case, the questions are almost moot – he is *already* a person who one wants to have as a colleague for the infinite future, and his past accomplishments are *already* those one would expect to have in a full Professor.

Although you specifically asked me not to comment on Bickel's teaching record and performance, I do wish to add that I had a brief interaction with three of his Ph.D. students when I visited in February, and was extremely impressed with them; I assume that he has not produced large number of PhD students in the past 5 years is due to the nature of the graduate program in OR/IE, which limits the size and nature of the pool from which to select them.

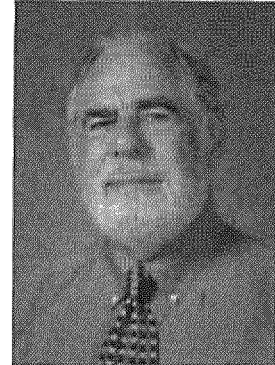
Perhaps the best way I can phrase my bottom-line recommendation about your decision is to use what might seem to be a threat: if you do *not* promote and tenure Assistant Professor L Eric Bickel at this opportunity, you can be sure he will be soon recruited and hired, with tenure and likely at the full Professor level, at one of this country's major educational institutions.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen Pollock", with a long horizontal line extending to the right.

Stephen Pollock

Dr. Stephen Pollock
Professor Emeritus, Department of Industrial and Operations Engineering
University of Michigan, Ann Arbor



Education

- B.Eng., Cornell University
- S.M., Massachusetts Institute of Technology
- Ph.D., Massachusetts Institute of Technology

Research Interests

My research centers on stochastic modeling of a wide variety of operational phenomena, as well as methods and models for decision making under uncertainty.

Honors and Awards

- Space Technology Laboratory Fellow, 1960
- National Science Foundation Senior Faculty Fellow, 1975-1976
- Alpha Pi Mu Outstanding Teacher Award 1989
- Stephen S. Attwood Award (Outstanding Contributions to the College of Engineering) 1990
- University of Michigan, Society of Fellows 1992-95
- University of Michigan, Tauber Manufacturing Institute Fellow 1999 - 2002
- Kimball Medal, Institute of Operations Research and Management Sciences 2002
- National Academy of Engineering 2002

Refereed Journal Articles

- Bordley, R. and S. Pollock "Assigning Resources and Targets to an Organization's Activities", *European Journal of Operational Research*, 220 (2012), pp. 752-761, 10.1016/j.ejor.2012.02.032
- Molnar, L., D. Eby, V. Nair, Y. Yang, K. Dasgupta and S. Pollock "Explaining State-to-State Differences in Seat Belt Use: A Multivariate Analysis of Cultural Variables", *Accident Analysis and Prevention* (2012), pp. 78-86, 10.1016/j.aap.2012.01.006
- Sir, M., M. Epelman and S. Pollock. "Stochastic Programming for Off-line Adaptive Radiotherapy, *Ann. Oper. Res.*, August 2010, DOI: 10.1007/s10479-010-0779
- Bordley, R. and S. Pollock, "A Decision Analytic Approach to Reliability-Based Design Optimization", *Operations Research*. Vol. 57, No. 5, September-October 2009, pp. 1262-1270
- Cox, L.A., Brown, G. G. and S. Pollock, "When Is Uncertainty About Uncertainty Worth Characterizing?", *Interfaces*. Vol. 38, No. 6, November-December 2008, pp. 465-468
- Sir, M., S. Pollock, M. Epelman, K. Lam and R. Ten Haken, "Ideal Spatial Radiotherapy Dose Distributions Subject to Positional Uncertainties", *Phys. Med. Biol.* 51 (2006) 6329-6347

Provided by department.

"Thomas C. Schelling" <tschelli@umd.edu>
To: Alicia Snyder <alicia@austin.utexas.edu>
Cc: "Thomas C. Schelling" <tschelli@umd.edu>
RE: Letter past due: Request for promotion evaluation letter for Prof. Eric Bickel

July 29, 2013 12:10 PM

1 Attachment, 29 KB

Dear Alicia Snyder,

My personal acquaintance with Eric Bickel is based on two appearances he made before the Copenhagen Consensus group, of which I was a member, and my role as discussant for the paper he presented to the American Enterprise Institute last May. Additionally I've read three of his papers on solar radiation management, which was also the topic of his presentations to the Copenhagen Consensus. It all relates to his work on "geoengineering", of which solar radiation management is the most currently important technique.

I've been interested and involved in geoengineering research and policy discussion since my presentation to a session on that subject at the annual meeting of the American Association for the Advancement of Science in early 1996, published that year. I've followed the subject ever since and was a member of the Bipartisan Policy Center's working group on that subject. I've lectured on it abroad and at home for the past fifteen years, and believe I know the subject well enough to judge Eric Bickel's contribution.

I find Eric Bickel to be as imaginative, insightful, and original on geoengineering as any expert I know in the field. He has produced ideas that others have not originated. His professional background in statistics and probability is, as far as I know, unique in the field. He is a policy thinker. Others contribute more to their particular sciences--atmospheric chemistry or physics, agronomy, oceanography--but Bickel is almost unique in his ability to identify crucial issues in the possible governance of either experiments or possible ultimate deployment of any effort at managing solar radiation.

I recommend him without reservation.

Tom Schelling

PS I attach a brief CV to let you know who I am.

From: Alicia Snyder [alicia@austin.utexas.edu]
Sent: Sunday, July 28, 2013 10:20 PM
To: Thomas C. Schelling
Cc: Murthy, Jayathi
Subject: Letter past due: Request for promotion evaluation letter for Prof. Eric Bickel

Dear Prof. Schelling,

We have not yet received your promised letter of assessment for Prof. Eric Bickel. Dr. Murthy asked me to check with you on the progress, as it is seriously over due. If you sent it previously, please do send it again, as we have not received it. We are finalizing our promotions package for Prof. Bickel and need to include it for the Provost.

Thank you again,

Alicia

From: Thomas C. Schelling [tschelli@umd.edu]
Sent: Thursday, April 18, 2013 8:56 PM
To: Murthy, Jayathi

Cc: Thomas C. Schelling
Subject: RE: Request for promotion evaluation letter for Prof. Eric Bickel

I'll be happy to provide an assesment of Eric Bickel for you.

Tom Schelling

From: Murthy, Jayathi (jmurthy@me.utexas.edu)
Sent: Thursday, April 18, 2013 5:21 PM
To: Thomas C. Schelling
Subject: Request for promotion evaluation letter for Prof. Eric Bickel

Dear Professor Schelling,

The Department of Mechanical Engineering at The University of Texas at Austin is considering the promotion of Prof. Eric Bickel from Assistant Professor to Associate Professor with tenure. I am wondering if you would kindly provide us with a confidential assessment of his suitability for promotion?

Please let me know, at your earliest convenience, if you are willing to provide a letter, which will be due by July 1st. It would be helpful if you would copy my assistant at alicia@austin.utexas.edu, as she will be coordinating compilation of the paperwork for your review.

If you are willing and able to assist in this important process, we will arrange to have a formal request, along with Prof. Bickel's promotion materials, made available to you within approximately one week.

Sincerely,

Jayathi Y. Murthy, Ph.D.

Jayathi Murthy
Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering
Director, PRISM: NNSA Center for Prediction of Reliability, Integrity and Survivability of Microsystems

The University of Texas at Austin
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512-232-7917 (fax)
<http://www.purdue.edu/discoverypark/prism>


Professional....doc (29 KB)

THOMAS C. SCHELLING

Born 1921.

Distinguished University Professor, Emeritus, University of Maryland and

Lucius N. Littauer Professor of Political Economy, Emeritus, Harvard University.

A.B. Economics, U.C. Berkeley, 1944. Ph.D. Economics, Harvard University, 1951.

The U. S. Bureau of the Budget, 1945-46.

The Economic Cooperation Administration in Europe, 1948 to 1950.

The White House and Executive Office of the President, 1951-1953.

Associate Professor and Professor of Economics, Yale University, 1953-58.

The RAND Corporation, 1958-59.

Professor of Economics, Harvard University, 1958-90.

John F. Kennedy School of Government, Harvard University, 1969-90.

Department of Economics and School of Public Policy, University of Maryland, 1990-2005.

Member, The National Academy of Sciences.

Member, The Institute of Medicine.

Fellow, The American Academy of Arts and Sciences.

The Frank E. Seidman Distinguished Award in Political Economy.

Distinguished Fellow of the American Economic Association.

The National Academy of Sciences Award for Behavioral Research Relevant to the Prevention of Nuclear War.

President, The American Economic Association, 1991.

The Bank of Sweden Prize in Economic Sciences in Honor of Alfred Nobel, 2005

Publications on military strategy and arms control, energy and environmental policy, climate change, nuclear proliferation, terrorism, organized crime, foreign aid and international trade, conflict and bargaining theory, racial segregation and integration, the military draft, health policy, tobacco and drugs policy, and ethical issues in public policy and in business.

Books:

National Income Behavior, McGraw-Hill 1951

International Economics, Allyn and Bacon 1958

The Strategy of Conflict, Harvard University Press 1960

Strategy and Arms Control (with Morton H. Halperin), Twentieth Century Fund 1961

Arms and Influence, Yale University Press 1966

Micromotives and Macrobehavior, W. W. Norton and Co. 1978

Thinking Through the Energy Problem, Committee for Economic Development 1979

Choice and Consequence, Harvard University Press 1984

Strategies of Commitment, and Other Essays, Harvard University Press, 2006

Provided by referee.



*Daniel J. Epstein Department of
Industrial and Systems Engineering*

Professor Jayathi Y. Murthy
Chair, Department of Mechanical Engineering
Cockrell School of Engineering
UT Austin
ETC II 5.160
1 University Station C2200
Austin, TX 78712-0292

June 5, 2013

Dear Professor Jayathi,

It is a pleasure to write a letter of recommendation in support of Eric Bickel's application for promotion to tenured associate professor. I have known Eric for about five years, primarily through professional meetings and by reading his papers. He is well regarded in the areas of decision and risk analysis and I followed his career with much interest.

Eric started his post-Ph.D. career as a member of the Strategic Decision group, a highly regarded consulting firm led by former and current Stanford University professors and affiliates. This strong grounding in the real world is also reflected in his research. This is admirable, especially, since so much of Operations Research and Industrial and Systems Engineering has drifted towards the purely abstract and mathematical.

His scholarship is outstanding. In the past ten years, he published 26 refereed articles (I did not count the editorials), including many in top rated journals. His work consists of an interesting mix of creative innovations and sophisticated applications. He also has been very successful in attracting research funding, receiving close to \$2 million for over a half a dozen projects. Both his scholarly productivity and his research funding have been strong over the past years and show a positive trajectory.

Among his publications I find the value of information (VOI) work most interesting from a theoretical perspective and his climate change work to be extremely relevant from an applied perspective. Value of Information is a powerful, often cited, yet underused modeling tool of decision analysis. Bickel's work, while theoretical, brings it closer to the applied world. Climate change poses extremely challenging modeling issues and Bickel's research on geo-engineering is refreshing in that regard.

Eric stands out among his peers. I would only rank Ali Abbas above him. Ali has already been promoted to associate professor with tenure at UIUC. There may be some in Eric's peer group who are stronger in theoretical or mathematical research, but few are able to match him in the more applied research area. As an example of his recognition in the applied research area, he won the important Practice Awards of the Society of Decision Analysis of INFORMS.

University of Southern California
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*Daniel J. Epstein Department of
Industrial and Systems Engineering*

Bickel Recommendation
von Winterfeldt, Page 2

In summary, I can recommend Eric highly for this promotion. He would be a welcome member as a tenured associate professor in many highly ranked engineering schools, including USC's. He has a positive trajectory and will do very well in the future.

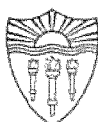
With best regards,

A handwritten signature in cursive script, appearing to read "Detlof von Winterfeldt".

Detlof.

Detlof von Winterfeldt
Professor, Epstein Department of Industrial and Systems Engineering
Viterbi School of Engineering
Professor, Price School of Public Policy
University of Southern California

University of Southern California
Los Angeles, California 90089-0193 • Tel: 213 740 4893 • Fax: 213 740 1120 • <http://www.usc.edu/dept/ise>



Dr. Detlof von Winterfeldt
Professor, Department of Industrial & Systems Engineering
University of Southern California



Education

- Ph.D., University of Michigan, Ann Arbor
- M.S., University of Hamburg, Germany
- B.S., University of Hamburg, Germany

Research Interests

- Decision analysis
- Risk analysis
- Environmental policy
- Behavioral decision research
- Homeland security

Teaching Interests

- Statistics
- Decision analysis
- Risk analysis
- Systems analysis
- Research design
- Behavioral decision research

Honors and Awards

- Distinguished achievement award by the Society for Risk Analysis, 2012
- Honorary IIASA Scholar, 2011
- Gold Medal from the International Society for Multicriteria Decision Making for advancing the field, 2009
- Ramsey Medal for distinguished contributions to decision analysis from the Decision Analysis Society of INFORMS, 2000

Refereed Journal Articles

- von Winterfeldt, D. (2013). Providing a decision focus for global systems analysis. *EURO Journal on Decision Processes*, 1, 1, forthcoming.
- Keeney, G. & von Winterfeldt, D. (2010). Identifying and structuring objectives of terrorists. *Risk Analysis*, 30, 12, pp. 1803-1816.
- Ezaell, C.E., Bennett, S.P., von Winterfeldt, D., Sokolowski, J., & Collins, A.J. (2010) Probabilistic risk analysis and terrorism risk. *Risk Analysis*, 30, 4, pp. 575-589. (Best paper award for issue-linked papers, Society for Risk Analysis).
- von Winterfeldt, D. (2012). Bridging the gap between science and decision making. *Proceedings of the National Academy of Science*, to be published in 2013.
- von Winterfeldt, D. Kavet, R., Peck, S., Mohan, M. & Hazen, G., (2012). The value of environmental information without control of subsequent decisions. *Risk Analysis*, 4, 4
- Keeney, R.L. & von Winterfeldt, D. (2011). A value model to evaluate homeland security decisions. *Risk Analysis*, Vol 31, 9, pp 1470-1481.

Provided by department.

"Murthy, Jayathi" <jmurthy@me.utexas.edu>

May 16, 2013 2:39 PM

To: Alicia Snyder

Keeney declined: Request for promotion evaluation letter for Prof. Eric Bickel

From: KeeneyR@aol.com [KeeneyR@aol.com]

Sent: Saturday, May 04, 2013 3:54 PM

To: Murthy, Jayathi

Subject: Re: Request for promotion evaluation letter for Prof. Eric Bickel

Dear Professor Murthy,

Unfortunately, I will not be able to provide a letter. Between now and July 1, I have only two weeks in the US and am way over-committed during that time period. Thus, I would not have the time for a quality appraisal.

Best regards,

Ralph

In a message dated 4/29/2013 6:17:02 P.M. Eastern Daylight Time, jmurthy@me.utexas.edu writes:

Dear Professor Keeney,

The Department of Mechanical Engineering at The University of Texas at Austin is considering the promotion of Prof. Eric Bickel from Assistant Professor to Associate Professor with tenure. I am wondering if you would kindly provide us with a confidential assessment of his suitability for promotion?

Please let me know, at your earliest convenience, if you are willing to provide a letter, which will be due by July 1st. It would be helpful if you would copy my assistant at alicia@austin.utexas.edu, as she will be coordinating compilation of the paperwork for your review.

If you are willing and able to assist in this important process, we will arrange to have a formal request, along with Prof. Bickel's promotion materials, made available to you within approximately one week.

Sincerely,

Jayathi Y. Murthy, Ph.D.

Jayathi Murthy
Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering
Director, PRISM: NNSA Center for Prediction of Reliability, Integrity and Survivability of Microsystems

The University of Texas at Austin
204 E. Dean Keeton Street - C2200
Austin, TX 78712-0292
512-471-0796 (phone)
512-232-7917 (fax)
<http://www.purdue.edu/discoverypark/prism>

Don Kleinmuntz <DNK@stratadecision.com>
To: "Murthy, Jayathi" <jmurthy@me.utexas.edu>
Cc: Alicia Snyder <alicia@austin.utexas.edu>
RE: Request for promotion evaluation letter for Prof. Eric Bickel

May 22, 2013 4:10 PM

Professor Murthy,

I am reluctant to agree to do this. Please don't take this the wrong way – I know Professor Bickel's work very well, and think very highly of him on both a personal and professional level.

However, I moved from academia to the business world almost seven years ago, and I am not sure that a letter from me on corporate letterhead is going to be well received by your College and University-level promotion committees. I spent enough time on P&T committee during my time in academia to know that this could be a tough sell, regardless of my professional qualifications to comment on his work.

Thus, I am going to very reluctantly tender my regrets. If I can assist by suggesting other names, please let me know.

Sincerely,

Don Kleinmuntz
Executive VP & Chief Analytics Officer
Strata Decision Technology
312.827.7706

From: Murthy, Jayathi [mailto:jmurthy@me.utexas.edu]
Sent: Monday, May 20, 2013 7:40 PM
To: Don Kleinmuntz
Cc: Alicia Snyder
Subject: Request for promotion evaluation letter for Prof. Eric Bickel

Dear Professor Kleinmuntz,

The Department of Mechanical Engineering at The University of Texas at Austin is considering the promotion of Prof. Eric Bickel from Assistant Professor to Associate Professor with tenure. I am wondering if you would kindly provide us with a confidential assessment of his suitability for promotion?

Please let me know, at your earliest convenience, if you are willing to provide a letter, which will be due by July 1, if possible. If more time is needed, please let us know. It would be helpful if you would copy my assistant at alicia@austin.utexas.edu, as she will be coordinating compilation of the paperwork for your review.

If you are willing and able to assist in this important process, we will arrange to have a formal request,

along with Prof. Bickel's promotion materials, made available to you within approximately one week.

Sincerely,

Jayathi Y. Murthy, Ph.D.

Jayathi Murthy
Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering
Director, PRISM: NNSA Center for Prediction of Reliability, Integrity and Survivability of Microsystems

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"Murthy, Jayathi" <jmurthy@me.utexas.edu>

April 21, 2013 12:59 PM

To: Alicia Snyder

Winkler: Request for promotion evaluation letter for Prof. Eric Bickel

From: Bob Winkler [rwinkler@duke.edu]

Sent: Sunday, April 21, 2013 8:09 AM

To: Murthy, Jayathi

Subject: Re: Request for promotion evaluation letter for Prof. Eric Bickel

Dear Professor Murthy,

Thank you for your email of April 18 inviting me to provide a letter with an assessment of Eric Bickel. I'm very sorry, but I have to decline because I am overcommitted at the moment in terms of reviews, promises to co-authors regarding work on joint projects, and upcoming research-related travel. My inability to participate in the process should not be interpreted in any sense as a negative indication regarding Professor Bickel. I'm simply too overwhelmed with other things at this time.

Best regards,
Bob Winkler

On 4/18/2013 5:26 PM, Murthy, Jayathi wrote:

Dear Professor Winkler,

The Department of Mechanical Engineering at The University of Texas at Austin is considering the promotion of Prof. Eric Bickel from Assistant Professor to Associate Professor with tenure. I am wondering if you would kindly provide us with a confidential assessment of his suitability for promotion?

Please let me know, at your earliest convenience, if you are willing to provide a letter, which will be due by July 1st. It would be helpful if you would copy my assistant at alicia@austin.utexas.edu, as she will be coordinating compilation of the paperwork for your review.

If you are willing and able to assist in this important process, we will arrange to have a formal request, along with Prof. Bickel's promotion materials, made available to you within approximately one week.

Sincerely,

Jayathi Y. Murthy, Ph.D.

Jayathi Murthy
Ernest Cockrell Jr. Memorial Chair in Engineering
Chair, Department of Mechanical Engineering
Director, PRISM: NNSA Center for Prediction of Reliability, Integrity and Survivability of Microsystems

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